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HAS THE AMERICAN GYNECOLOGICAL SOCIETY DONE ITS PART IN THE ADVANCEMENT OF OBSTETRICAL KNOWLEDGE?*

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When casting about for a suitable subject on which to address you, it occurred to me to read all of the obstetric articles which have been contributed to the society since its inception, in the hope that their analysis might prove interesting to our older members and stimulating to the younger ones.

During the thirty-eight years of its existence, 1,010 papers have been contributed, 664 on gynecologic and 346 on obstetric topics, including extra-uterine pregnancy. Consequently, a little more than one-third (34.2 per cent.) fall in the latter category and were contributed by 128 persons. Of these, 53 made only a single contribution, 50 read from two to four papers each, 22 from five to nine, and 3 ten or more papers, so that somewhat less than one-fifth of the entire number were frequent contributors.

I found the task of reading the articles very interesting and fairly profitable, as they set forth in a more or less consecutive manner the history of obstetrics for the past forty years, and served to impress me anew with the great progress which had been made in the technical side of our art.

During this period we have witnessed many changes, the most far-reaching being the development of aseptic technic and the establishment of the bacterial origin of puerperal infection, as the result of which the lying-in hospital has been converted from the most dangerous to the safest place for the delivery of women. Every stage in the development of this doctrine can be traced in our *Transactions*. In the early volumes one finds articles showing that vaginal and intra-uterine douches could be administered with safety, along with other articles giving directions for the most rudimentary antiseptic technic.

It may surprise some of our younger members to learn that, so late as 1884, Albert H. Smith, in his presidential address, vigorously combated the bacterial origin of infection; and, on the other hand, that some members of the society took an active part in the transformation of the lying-in hospitals. For example, we read with pride of Garrigues' achievements in 1883 at the New York Maternity Hospital. In the first nine months of that year, thirty deaths from infection had occurred in 345 deliveries, but the changes which he so intelligently introduced effected such a revolution that during the last three months of the year not a single patient died, and only three of the ninety-five presented a rise in temperature. Furthermore, Polk told us that when he graduated in medicine, delivery in a lying-in hospital was far more dangerous than an engagement in the bloodiest battle, for during his internship at Bellevue he saw forty-five women die out of the sixty who had been delivered during a single month.

In the papers of Garrigues and Jewett we can also trace the history and development of laparo-elytrotomy, the latter informing us that six women and seven children had been saved in eleven operations up to 1885. This operation is of great interest to students of medical history, as its invention by Thomas represents one of the very few American contributions to obstetrics; and its recent resuscitation under the guise of extraperitoneal cesarean section shows that his conceptions were well founded.

The conversion of cesarean section from "the most dangerous operation in surgery," to one in which the results are so good that it is in imminent danger of being abused by "knife-loving" obstetricians and by surgeons who know nothing of the resources of obstetrics, can be graphically followed. The early accounts of tardy operations for the removal of a dead child from an exhausted and infected woman stand in marked contrast to the first elective operation performed by Lusk in 1887, and particularly to the long series of successful operations which were afterwards reported by many of our fellows.

Following Harris' paper in 1892, entitled "The Remarkable Results of Antiseptic Symphyseotomy," we can trace the development and fall from favor of that operation, as well as the scant recognition accorded the usefulness of its sister operation, pubiotomy.

One of the most interesting phases of obstetric history is afforded by the fifty-one papers on extra-uterine pregnancy. In these we can trace the evolution of a pathologic curiosity into a condition of every-day occurrence. Furthermore, we can follow the education of the profession in its diagnosis, as well as the gradual development of means for its cure, first by electricity or by the injection of morphin into the sac, and later by surgical methods. We can likewise trace the development of the *furor operativus* to the point at which the diagnosis of the condition came to mean immediate operation without regard to the condition of the patient, until Robb's experimental work demonstrated the fact that interference might frequently be deferred with benefit to the patient.

* Presidential address, delivered before the American Gynecological Society, 1914.

Many other changes can be followed with interest and profit; for example, the slow recognition of the fact that occiput-posterior presentations should not be regarded as abnormal, but that, if left alone, they will usually terminate spontaneously with but little greater difficulty than when the occiput is directed anteriorly.

We can also follow the evolution of more correct views concerning the employment of forceps and the recognition of the fact that its improper use is a potent factor in the death of the child and in the production of serious lesions on the part of the mother. Likewise, we can read the discussions concerning the value of axis-traction; but, just as its merits were beginning to be recognized, its field of usefulness became markedly restricted by the knowledge that it is not the ideal means of overcoming mechanical obstruction.

It is interesting to recall the fact that, in the early days of the society, not even trained obstetricians were agreed as to the necessity for the immediate repair of birth injuries; for, at the first meeting in 1876, Goodell contributed an important communication setting forth the innocuousness and desirability of routine perineal repair.

I might continue to recount many other advances in the practical treatment of childbirth and its complications, but time will not permit. Consequently, I shall refer only to the abuse of ergot. Its employment was considered on several occasions in the early days of the society, when the consensus of opinion developed that it was indicated only after the extrusion of the placenta. It may also interest you to be reminded that it was frequently administered so freely in the treatment of abortion as to give rise to chronic ergot poisoning, and that John Goodman reported an instance in which it had led to gangrene of the extremities. I lay stress on this almost forgotten fragment of medical history, for I believe that unless correct teachings concerning the action of and the indications for the use of the various preparations of pituitary gland substance soon become current, a similar crusade will be necessary to check the abuse of this powerful therapeutic agent.

After listening to this imperfect enumeration of the advances of obstetrics as portrayed in our *Transactions*, one's first impulse is a feeling of pride in the achievements of his colleagues and a sense of satisfaction with the part we have played in developing this branch of medicine. Closer and candid consideration, however, compels the depressing confession that such feelings are not justified, but that, on the contrary, we have done virtually nothing in developing even the practical side of our art. We have been content merely to follow in the footsteps of others, occasionally quite sluggishly, and to reap what we have not sown.

Careful analysis of our *Transactions* has failed to convince me that scarcely a single, fundamental contribution to practical obstetrics has been made to this society, and I feel that you will agree with me when you hear the facts.

We did nothing fundamental in connection with the question of puerperal infection; Holmes, Semmelweis, Pasteur and Tarnier laid its theoretic foundations, while the practical utility of antiseptic precautions had been demonstrated in Germany and France before we seriously faced the matter.

The modern cesarean section originated in Germany, and five years elapsed after the publication of Sänger's monograph before we were able to report a single, successful operation.

The same may be said of symphyseotomy and pubiotomy; and it was not until after Harris had called attention to the results obtained in Italy and France that we showed signs of being aware that the operation had been successfully resuscitated. Even in connection with extra-uterine gestation we have little reason to be proud, as the operation after rupture came to us from Tait, and Veit had given directions for diagnosticating unruptured tubal pregnancy four years before the subject was mentioned before this society.

Likewise, our views concerning the mechanism of labor in occiput-posterior presentations were woefully behind the times; and it required years for us to reach the position which Naegele had attained in 1838. Naturally, it might have been supposed that the mechanical ingenuity of this nation would have led to improvements in the forceps; but not so. While we were inventing narrow-bladed instruments which might be applied through a cervix the size of a five-cent piece, Tarnier had worked out the principle of axis-traction, which we accepted only after considerable hesitation.

I shall not continue this doleful list, as it seems sufficient to prove that we have added practically nothing to the technical side of obstetrics, while the analysis which I am about to present will show that we have done even less on the scientific side.

For purposes of analysis, I have classified the 346 obstetric papers into thirty-two groups, as shown by the accompanying table.

ANALYSIS OF THE OBSTETRIC PAPERS, 1876-1913

Subject	No. Papers* Total	Cred.	Exc.
A. Pregnancy—			
1. Abnormalities of	20	3	2
2. Complicated by tumors	13	1	0
3. Operations during	2	0	0
4. Physiology of	11	2	3
B. Labor—			
5. Abnormalities of	8	0	2
6. Conduct of, including anesthesia and oxytocics	29	5	1
7. Mechanism of	2	0	1
8. Physiology of	1	0	1
C. Puerperium—			
9. Abnormalities of	5	0	0
10. Normal	6	0	1
11. Infection during	25	3	1
D. Lacerations, etc.—			
12. Lacerations of cervix	5	1	0
13. Lacerations of perineum	9	2	0
14. Rupture of uterus	8	0	0
15. Vesicovaginal fistula	1	1	0
E. Instrumental Delivery—			
16. Operative technic	1	0	0
17. Accouchement forcé and the induction of labor	12	1	0
18. Cesarean section	25	2	1
19. Forceps	6	0	0
20. Gastro-elytrotomy	2	1	0
21. Pubiotomy and symphyseotomy	7	3	1
22. Version	2	0	0
F. Abortion—			
23.	2	0	0
G. Extra-uterine pregnancy—			
24.	51	7	5
H. Eclampsia, toxemia and vomiting—			
25	28	3	2
I. Contracted pelvis—			
26.	7	2	3
J. Hemorrhage—			
27. Accidental	1	0	0
28. Post-partum	3	0	0
29. Placenta praevia	17	1	1
K. Displacements of uterus—			
30.	7	0	1
L. General Topics—			
31. Child	10	2	0
32. General	20	2	1
	346	42	27

* The first of these columns indicates total number; the second, the number of creditable papers, and the third, the number of excellent papers.

With as little bias as possible, I have attempted to form a judgment as to the value of the papers, and have designated as good or creditable those in which the subject under consideration was presented in a useful and attractive manner, but without adding anything new, and as excellent such papers as have contributed, even to a slight extent, to the sum total of obstetric knowledge. Judged by these criteria, I have placed forty-two papers in the former and twenty-seven in the latter category — 12 and 8 per cent., respectively. Consequently, it would appear that on the average less than two creditable papers have been contributed each year and that only two contributions could be expected in three years. Surely this is not a showing of which our society can be proud.

On the other hand, I would call attention to the fact that seventy papers, or somewhat less than one-fifth of the entire number, were purely casuistic in character, and were based on the history of one or at most two cases. Though often interesting, papers of this character are usually of little value and are better suited for presentation before a local medical society than before a national association supposedly composed of scientific men.

Most of the remaining 207 papers were unobjectionable, yet, while sometimes provocative of interesting discussion, they served merely as vehicles for the expression of the personal experiences of their writers. A small number, including an occasional thesis for admission, were valueless and sometimes puerile. In general, these papers were practical in character and dwelt but little on the scientific or theoretic aspects of the subject. Many of them were based on an experience too small to justify authoritative conclusions and were such as might be expected from young assistants after a few years' service in a well-conducted clinic. It would appear that their chief function was to afford the authors an opportunity to air their views at the expense of the society on topics of more or less general interest and to educate the general practitioner, rather than to stimulate the free exchange of thought between competent experts with a view to broadening their field of vision and increasing the general store of knowledge.

Reverting to the analysis of the papers, I found six creditable and four excellent communications among the forty-six included in the four groups devoted to pregnancy (*A*). I was greatly surprised, however, at the dearth of papers on many important subjects. For example, there was an entire absence of reference to the biologic and biochemical aspects of pregnancy, and, with the exception of a demonstration by Minot, no mention was made of the fundamental problems connected with placentation. Nothing was said of normal metabolism during pregnancy, and, had we been dependent on the society for information, we should have been unaware of the significance of Abderhalden's pregnancy reaction.

Furthermore, only once during the life of the society has reference been made to the importance of syphilis in connection with the child-bearing process, and that only in an incidental manner. As my own experience leads me to believe that this is the most important single factor concerned in the death of the fetus during the last three months of pregnancy, I feel that, had we been alive to our responsibilities, we should have had numerous communications concerning the bearing of the discovery of the spirochete and the Wassermann reaction on the validity of the laws of Colles and Profeta, as well as on the practical aspects of prophylaxis and treatment.

In the four groups, including the various phases of labor there were forty articles (*B*), of which five were good and the same number excellent. Most of these dealt with the purely practical aspects of mechanical delivery. On the other hand, no mention was made of our ignorance concerning the causation of labor or of the physiology of uterine contractions, and, although a number of writers dealt with the management of abnormal presentations, only one made a contribution to the mechanism of labor, and another to the anatomy of the parturient soft parts. Did time permit, many other important problems might be mentioned which have been left entirely untouched.

Of the thirty-six articles included in the three groups dealing with the puerperium (*C*), four were creditable and two excellent. Their analysis shows that practically none of the many problems connected with the normal aspects of this period had been considered, and that only two authors had dealt with the fascinating process of involution and then only from a clinical point of view. Furthermore, no one suggested that investigations during this period would probably eventually solve the riddle of the mode of production of retrodisplacements of the uterus and thus do away with one of the opprobria of gynecology.

Careful perusal of the twenty-five papers on puerperal infection indicates very accurately the general point of view of the society. With one exception, no serious contribution to the bacteriology of the affection has been made. The members have been more interested in discussing such questions as whether hysterectomy is the ideal treatment for desperate cases than in studying the mode of origin and the clinical course of the disease in the hope of preventing its outbreak and eventually securing its elimination.

In the four groups dealing with injuries to the birth-canal (*D*), there were three creditable but no excellent papers; little need be said concerning them.

In the seven groups dealing with the various obstetric operations (*E*) there were fifty-five papers, seven of which were good and two excellent. This is a startling disappointment, as it is in just this field that one would expect to find important contributions resulting from American mechanical ingenuity. On the contrary, the papers in this group were unusually poor; most of them consisted of reports of series of cases or of discussions concerning the indications for operation which were devoid of valuable suggestions. That this is not an exaggeration is shown by the fact that only a single paper among the twenty-five on cesarean section presented an idea which was not already well known; while in the articles concerning several other operations suggestions were occasionally made which were at variance with sound practice.

Passing over the two papers on abortion (*F*) we come to the largest group in our analysis, namely, fifty-one papers on extra-uterine pregnancy (*G*), in which there were seven good and five excellent communications. This represents a larger proportion of creditable papers than usual, but I do not think that we obstetricians can take much comfort from the fact, for on looking over the list of authors it is found that the great majority were pure gynecologists, who would feel aggrieved were they accused of having any particular knowledge of obstetrics. Here again most of

the papers consisted of casuistic reports, or of discussions concerning the necessity for operation or of details of technic. Several articles were based on experimental work; but, with the exception of the reports on several specimens of ovarian pregnancy, no mention was made of histologic findings, of the interesting variations in placentation, or of many of the important problems connected with the etiology of the condition.

In the group dealing with the toxemias of pregnancy, eclampsia and vomiting (*H*), there were twenty-eight papers, of which three were creditable and two excellent. The same criticism holds good here as elsewhere, for with a few notable exceptions most of the writers were more concerned with the consideration of methods for evacuating the uterus than with the study of the factors responsible for the production of such a condition.

Passing on to the next group (*I*), one is surprised to find that during the course of thirty-eight years a body of obstetricians should have contributed only seven papers dealing specifically with contracted pelvis. On the other hand, this group of papers is unusually meritorious, as two were good and three were excellent. Of course, the subject was also considered incidentally in connection with the various operative procedures; but it seems strange, in view of its great practical importance and of our unsatisfactory methods of diagnosis and classification, that it has not evoked greater interest.

Considering together the three groups dealing with the various types of hemorrhage (*J*), there were twenty-three papers, of which one was creditable and one excellent. The great majority of these communications dealt with placenta praevia and more particularly with the determination of the most conservative method of effecting delivery in the presence of this complication. With but few exceptions, however, I was surprised to find that the experience of the writers on the subject was too limited to permit authoritative conclusions, and that many of the articles consisted in great part of literary references and didactic utterances. As usual, there was but scanty consideration of the mode of causation of the abnormality or of the anatomic peculiarities associated with it. Indeed, the only contribution to the subject was made in the early days of the society.

There were seven papers in the group treating of displacements of the uterus (*K*), the most important of which had to deal with dystocia following operations performed for the relief of retrodisplacements; one of them constituted a real contribution to the subject. In view of the fact that at least one quarter of all women develop retrodisplacements following the first confinement, it appears strange that more attention has not been paid to the etiologic significance of its appearance in the late puerperal period.

In the last two groups, covering the child and the communications on general obstetric topics (*L*), there were thirty papers, which I shall dismiss with the statement that four were creditable, while one constituted a distinct contribution.

Doubtless many of you may consider this analysis a harsh arraignment of the obstetric members of the society, but I feel sure that had it been seemly to mention names and to specify titles many would agree to it, though it is possible that a more lenient critic might have made the list of creditable and excellent papers longer. It is unnecessary for me to state that the analysis was not undertaken in a captious spirit, but was dictated by my interest in obstetrics and by my affection for this society, and in the hope that by laying bare our weak points I may possibly stimulate some of our members to better work.

If my estimate is correct that only twenty-seven of the 346 papers were excellent, the conclusion is inevitable that the American Gynecological Society has not done its part in the advancement of obstetric knowledge. If this is admitted — and I fail to see how any other conclusion can be reached — the query naturally arises whether the failure is to be attributed to the character of our membership or to some more deeply-lying factor.

When we canvass the list of members, both past and present, and the important teaching and hospital posts held by them, and also recall the careful scrutiny to which they were subjected before being elected, it must be admitted that with few exceptions the society includes the foremost representatives of American obstetrics. This being the case, it follows that the lack of productiveness cannot be due to failings of the individual members, but should be attributed to some nation-wide cause the explanation of which must be sought in factors peculiar to American conditions.

As far as I have been able to ascertain, only three fundamental contributions to obstetrics have been made by American writers, namely, the introduction of the medicinal use of ergot, by John Stearns; the recognition of the infectious nature of puerperal fever, by Oliver Wendell Holmes, and the development of laparo-elytrotomy, by T. Gaillard Thomas — the first a country practitioner, the second an anatomist and litterateur and the third a professor of obstetrics. On the other hand, with few exceptions American obstetricians have been content to appropriate and adopt the results of European investigators and to limit their writings practically to casuistic contributions and to the discussion of details of operative technic.

Opinions may differ as to the national peculiarities which are responsible for this relative sterility, but I feel very strongly that three main factors are involved, namely, (1) the tendency to regard the practice of medicine as an engrossing financial pursuit, (2) defective ideals and tendencies in medical education and (3) the divorce in this country of gynecology from obstetrics.

With few exceptions, all of us undertake the study of medicine as a means of making a livelihood, and consequently, our first aim is to obtain sufficient practical facility in our art to enable us to attain that end, and no one knows better than I what it means to do so and how insistent are the demands of practice. Of those who are exclusively engaged in private practice and who have not formed important hospital or teaching connections, little more can be expected than that they render their patients efficient service by keeping reasonably well abreast with the advance of knowledge and extend a sympathetic hearing to such of their colleagues as may try to add to it.

More, however, should be expected from those who have important hospital connections or who hold teaching posts. The former fail to do their duty to the hospital and its patients if they and their assistants do not attempt to extend the limits of knowledge; while the latter cannot expect to stimulate their students or to train their assistants properly unless

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they teach them how little is really known and can open vistas of what may be accomplished by patient scientific work. The standing of such men should be judged, not by the size of their income or by the local consideration in which they are held, but by whether they make an occasional contribution to the science which they profess to love, and, if they are content to publish mere casuistic reports or series of operations, they must be prepared to have others consider that they have wrapped their talent in a napkin and buried it.

To my mind, however, one of the most important factors in our lack of productivity is to be found in our system of medical education. Until very recently university ideals were entirely lacking in our medical schools, and even now, in many institutions affiliated with universities, the connection is purely nominal. How many of us who hold professorships can truthfully say that we are held to the same accountability as the heads of the "true" university departments, or are expected to justify our existence by an occasional contribution to science? Do not we, and the authorities as well, consider that our obligations have been satisfactorily fulfilled if we teach a few hours each week, give decent care to the patients under our charge and once or twice a year write a practical paper so that our professional friends may know that we are still alive? We must admit the indictment, but the fault is not entirely ours; for I think that not much more can be expected of us until the universities awake to the fact that medical education is a serious undertaking and is the most costly of all forms of instruction.

How many obstetric departments are provided with proper accommodations for a sufficient number of patients for the instruction of students, with adequately paid and enthusiastic assistants, or with suitably equipped laboratories for research work, not to mention a salary for the director in any way commensurate with the ability and effort necessary to supervise the work in anything like an ideal manner? Real university departments are just beginning to be organized in some other branches of medicine, but I know of none in gynecology or obstetrics.

From extensive investigation I know that, in most of our schools, obstetrics is the department most poorly equipped and must ordinarily be content with what is not wanted by others; often the professor is regarded by his colleagues as being engaged in an almost unworthy pursuit. No doubt some professors are poorly trained and fulfil their obligations lightly, but I know many who take them seriously and feel depressed whenever they consider the status of their department and their inability to do better work. So long as such conditions exist, it is scarcely conceivable that many professors will be scientifically productive or will often be able to induce promising young men to devote themselves seriously to this branch of medicine, for the few men in this country who are really performing their duty are doing so at a great personal sacrifice and against odds with which they should not have to contend.

The third reason for the low state of American obstetrics is that this is the only country in which obstetrics and gynecology are sharply divided, and I may add that this is the only important gynecologic society in which the majority of the members take no interest in obstetric problems, or in which a member discussing a paper would preface his remarks by stating that he knew nothing of obstetrics and then go on to make banal remarks.

Time will not permit me to discuss this phase of the subject at length, but I know that in this country neither gynecology nor obstetrics will take its proper place until a body of men has been developed who will be interested in and devote themselves to the study of the problems connected with the entire sexual life of women. I hope I may live to see the day when the term "obstetrician" will have disappeared and when all teachers, at least, will unite in fostering a broader gynecology, instead of being divided, as at present, into knife-loving gynecologists and equally narrow-minded obstetricians, who are frequently little more than trained man-midwives.

While it is debatable whether a union of gynecology and obstetrics is feasible for those engaged exclusively in private practice or would materially improve matters in most medical schools as at present organized, there is no doubt in my mind that the professorial chairs in the university medical schools need to be filled by broadly trained scientific men, who are prepared to give their time to their duties. Such a development, however, is scarcely to be expected until the universities are prepared to equip and maintain women's clinics, somewhat similar to the Frauenkliniks of Germany, but more liberally provided with laboratories for the anatomic, chemical, pathologic and physiologic investigation of gynecologic and obstetric problems. In this event the director must be an accomplished scientific man as well as a competent clinician, who will devote the major portion of his time to the management of his department. If he is of the proper type, this will involve no sacrifice; but if he is not, he will be unhappy, no matter how great the emoluments may be. Institutions of this character will also require the services of a large staff of well-trained and enthusiastic assistants, but will be able to make little use of the short-term intern, who desires only a smattering of learning. Large endowment or state aid will be necessary for the support of such institutions, but I can conceive of no better expenditure of funds if it leads to fuller knowledge of the many unsolved problems connected with women and to the development of a body of men competent to undertake their investigation.

I hope to see a number of such institutions scattered over the land and then no future president of this or any other society will be able to say that its members have not done their part in the advancement of obstetric or gynecologic knowledge. We have heard of "the passing of a specialty," but I feel that there is a glorious future for the broader gynecology, which is as yet scarcely in its infancy. Let us do what we can to advance it.

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Hygiene and School Instruction.—The text-books offer a splendid field for instruction, and the time is not far distant when those classics in school literature, "Ned, can you hop?" and "What is in the nest?" will give way to epigrammatic statements concerning the value of fresh air, the danger of the common drinking-cup and the roller towel, the importance of a pure water-supply, the relation between sewage and disease, the contributing influence of alcoholic indulgence in the development of tuberculosis, etc.—J. H. Landis, in *Am. Jour. Pub. Health.*

TYPHOID FEVER *

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Typhoid fever does not originate by itself, out of a clear sky. Everybody knows that it is possible to connect many typhoid cases with a previous case of the same disease. This would be true of every case if we could discover all the circumstances of infection.

Like all other infectious and contagious diseases, typhoid fever is a germ disease, that is, it is due to a small living organism. The typhoid germ does not develop by "spontaneous generation" out of lifeless matter, nor does it come into existence suddenly as the wayward offspring of an innocent microbe, but only as the descendant of another germ of the same kind. It is therefore true that if all typhoid germs now living could be destroyed, the disease itself would cease to plague us. Although immediate and complete extermination of all typhoid bacilli is an impossible task, it is evident that if we can in any way materially lessen their number, we shall also diminish the frequency with which infection occurs. One rattlesnake in a town is less dangerous than ten thousand rattlesnakes. In this sense typhoid fever is a preventable disease. If we can keep away from the typhoid bacillus or can keep it away from us, we shall not have typhoid fever. We cannot see the bacillus without a microscope, but fortunately we know where it lives and how we are likely to come into contact with it, so that we are able to do much to protect ourselves.

First of all we must remember that typhoid fever is a disease restricted to man. None of the domestic animals suffer from it. In consequence, methods of prevention are in some respects simpler than in the case of a disease which, like tuberculosis, afflicts animals associated with man as well as man himself.

EARLY RECOGNITION OF TYPHOID FEVER IMPORTANT

For purposes of prevention as well as cure it is important to recognize the existence of typhoid fever in an individual or in a community as early as possible. The symptoms of typhoid fever, like those of other infectious diseases, are not the same in all persons. Atypical cases are often encountered in epidemics. There are all grades of severity, from the extremely toxic and fatal cases to those in which the patient thinks he is suffering merely from a slight "indisposition" or "bilious attack," is able to keep about his work and perhaps never calls in a physician. Even in severe cases some one or more of the usual symptoms of typhoid fever, such as initial headache, rose-spots over the body, characteristic fever curve, or enlarged spleen may be lacking, or the disease may present an unusual and confusing symptomatology so that early diagnosis is uncertain or impossible. It is less than a hundred years since typhoid fever began to be distinguished by physicians from other "slow" or "continued" fevers, and there is still a measure of uncertainty in some cases in which physicians have to base their diagnosis on "symptoms" alone, and have not the aid which comes from the laboratory tests. Infection with the typhoid bacillus may be mistaken for malaria or for infections with other bacteria, such as the tubercle bacillus. From the point of view of prevention it is highly important that diagnosis of typhoid fever be made as early and as accurately as possible in order that suitable means shall be taken to prevent further dissemination of the typhoid bacilli from the sick person.

At present the physician can avail himself of two valuable diagnostic procedures in addition to a study of the symptoms. One of these is examination of the blood by means of cultures. The typhoid bacillus is present in the circulating blood early in the course of the disease, so that from 20 to 40 drops of blood, drawn from the ear or finger or, better, from a vein in the arm by means of a sterile syringe and subjected to expert bacterial cultivation and examination, will reveal the presence of the typhoid bacillus usually in the first week of the disease. If the blood is examined later than the first week or ten days, even in pronounced cases the bacilli may not be found. When the typhoid bacillus is actually obtained from the blood in this way there can be no further doubt as to the presence of typhoid fever. A certain degree of technical experience and suitable laboratory facilities are necessary for the proper application of this method.

The other method of bacterial diagnosis is the agglutination or Gruber-Widal test. This is based on the discovery that the blood of persons who are infected with the typhoid bacillus possesses the power of clumping or agglutinating the bacilli. For this test there is needed only a small amount of blood, which may be collected in small tubes, or allowed to dry on mica slips. When the serum from a drop of coagulated blood is mixed in dilution of 1:50 or, better, 1:100, with a culture of typhoid bacilli suspended in salt solution, the bacilli will gather in clumps if the blood is taken from a typhoid fever patient, but will remain separate if the blood comes from a normal person or from one affected with a disease which is not typhoid fever. This clumping property in the blood does not develop as a rule until the second week of the disease, and may not appear until later, or may be absent altogether in exceptional cases. It is so often positive, however, even in cases in which other symptoms are obscure, that it has proved a very valuable aid in typhoid diagnosis. The presence or absence of agglutinative power cannot be regarded as final, but taken along with the clinical symptoms and other circumstances it makes it possible for physicians to recognize the existence of typhoid infection in practically all cases. If the first agglutination test is negative, and the symptoms of typhoid persist, a second and even a third test should be made. In the interpretation of positive agglutination tests, careful inquiry should be made as to previous typhoid infection or previous typhoid vaccination, since in either of these instances a positive agglutination may be obtained although the disease from which the patient is suffering may be due to other infection. Moreover, either typhoid vaccination or a previous attack makes the subsequent occurrence of typhoid extremely unlikely.

The importance of recognizing as many cases of typhoid fever as possible and recognizing them early is very great. The typhoid germ multiplies almost exclusively in the living human body and cannot as

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a rule retain its vitality very long apart from its human host. The disease is kept alive, therefore, mainly by the transfer of the living germ from the person in whom it has grown, usually a typhoid patient, convalescent, or carrier, to a healthy person who gives it shelter, becomes a breeding-ground for it, and in his turn passes it on to one or to hundreds of others. It is one of the urgent tasks of public hygiene to break this chain of typhoid germs at as many points as possible.

REPORT TYPHOID CASES

To this end it is necessary to establish in each community or group of communities some central health office to which the physicians shall report every case or suspected case of typhoid fever coming under their observation. Only in this way can the beginnings of an epidemic be detected and measures taken to prevent further spread. One or two typhoid cases in the practice of a busy physician naturally do not appear to him especially significant, but if several physicians report cases occurring about the same time so that the total number in the town is suddenly increased to an unusual degree, the health authorities are at once made acquainted with the situation and can try to discover the source of the outbreak. Only in this way, too, is it possible to place each case of typhoid fever under the centralized supervision that it must have in order to lessen the chance of further scattering of disease germs throughout the town. Family and friends must be warned of the danger of close association with the patient. In some instances in which expert nursing cannot be provided, special precautions must be taken to insure the disinfection of the excreta. For all these reasons it is easy to see why prompt notification of every suspected case of typhoid fever is the first important step in preventing spread of the infection.

WHERE THE TYPHOID BACILLUS IS FOUND

While the typhoid bacillus makes its true home in the human body and does not thrive in water, soil or the bodies of the lower animals, it is nevertheless able to survive for a few hours or days after it leaves the body of its host. This fact explains why typhoid fever is sometimes caused by germs that have traveled many miles away from the person in whose body they originally grew. Typhoid bacilli are discharged from the body in (1) the feces, (2) the urine and rarely (3) the sputum. They may be present in these excretions in enormous numbers. A single drop of urine may contain as many as one million living typhoid germs. Clothing, bedding, table utensils, in fact any object used by, or coming into contact with, a typhoid patient may easily become contaminated with typhoid bacilli even when ordinary care is used. It has long been known that members of the family and especially those nursing typhoid patients are very liable to contract the disease. Any one can see why this is so. Merely swallowing the typhoid germ is sufficient to produce typhoid fever. The facts just stated show how difficult it is to avoid swallowing typhoid bacilli whenever persons must live for days or weeks in close association with a patient who may be discharging daily hundreds of millions of germs. Ordinary washing or rinsing of the hands does not render them bacteriologically sterile. The attendant of a typhoid patient, after going to the sick-room or handling anything from it, should wash the hands thoroughly with soap and water and, if possible, use also a disinfectant solution such as 1:2,000 mercuric chlorid, compound solution of cresol, or 70 per cent. alcohol. Towels, door-knobs, articles of furniture or clothing may be the means of conveying typhoid bacilli to the hands. The hands may in turn be used for breaking or handling bread, cake or other articles of food and so introduce typhoid bacilli into the mouth. Contact infection, or more appropriately hand infection, is one of the most common causes of typhoid fever, and close association with typhoid patients must always be looked on as dangerous. The danger can be reduced by removal of typhoid patients to the hospital. Unskilled home nursing, however painstaking and affectionate, will always imperil the household. This is particularly the case if the person caring for the patient also has to do with the preparation of food for other members of the family. Even in hospitals, experienced nurses and attendants are likely to contract the disease unless great care is taken. All nurses of typhoid patients and all persons living in houses in which typhoid patients are being cared for should be protected by the method of typhoid vaccination which will be described presently.

WATER-BORNE INFECTION

The direct handing over of typhoid germs from one person to another which has just been described is only one way in which the disease is transmitted. The mode of infection may be much more indirect and roundabout. Typhoid bacilli sometimes find their way into food or drink used by large numbers of persons and give rise to explosive and very extensive outbreaks. Public water-supplies and milk-supplies are two of the most common sources of typhoid infection. In many localities the connection between water-supply and sewerage systems is far too close. The enormous amount of water required for large cities in this country can seldom be obtained absolutely free from sewage contamination. When typhoid germs leave the body in the excreta they are likely to pass into the sewerage system.[1] It does not take a large quantity of sewage to produce infection. The discharges of a single patient, even when diluted with several million gallons of water, have been known to give rise to over one thousand cases of typhoid fever. This is not so remarkable as it seems if we remember that the number of typhoid bacilli discharged in one day may easily reach 5,000,000,000, or more than ten germs in every gallon of water in a large supply like that of Chicago.

Surface water-supplies such as rivers and lakes are especially liable to sewage contamination, and with the growth in density of population in this country such pollution seems likely to increase rather than diminish. Under present conditions all sewage must be regarded

1. It might be supposed that if all the excretions from typhoid patients were sterilized the disease would cease to exist, and it is undoubtedly true that the prevalence of the disease would be greatly diminished if thorough disinfection of typhoid excreta were more generally practiced. Unfortunately, the matter is not quite so simple. Besides the mild cases of the disease already mentioned which never come under the care of a physician, and the irregular cases which are not definitely recognized as typhoid, there are some convalescents who continue to discharge living and virulent typhoid bacilli from their intestines long after complete recovery has taken place. In addition there are certain patients, probably rather numerous, who have begun to discharge typhoid bacilli in the feces before typical symptoms have appeared and before they have submitted themselves to the care of a physician. Even with the great improvement that would come if the disinfection of the excreta of all known typhoid patients were strictly carried out, those persons in the groups just described would be sufficiently numerous to propagate the disease. All sewage must be regarded as infectious.

as possibly containing typhoid germs. In many localities it is not considered practicable to render sewage entirely free from intestinal bacteria before its discharge into large lakes or water-courses. Water-supply officials are hence right in advocating purification of all water-supplies not obtained from perfectly pure sources. Purification and consequent freedom from disease germs may be secured either by filtration on a large scale or on emergency by treatment with calcium hypochlorite (bleaching-powder). Even carefully protected water-supplies from thinly set-

Fig. 1.—This reproduction of a photograph shows a privy overhanging a small brook, one of the feeders of the Merrimac River, Massachusetts, only 2½ miles above the intake of the Lowell water-works. The privy was used in October, 1890, by a patient in the beginning stages of typhoid fever. The use of this outhouse by the patient was followed by an outbreak of typhoid fever in Lowell, numbering several hundred cases. (From Sedgwick's Investigations of Recent Epidemics of Typhoid Fever in Massachusetts, 1892.)

tled districts are liable to accidents. In Germany this is recognized to the extent of requiring the purification of all surface waters used for city supplies.

In country districts, also, water may be a vehicle of typhoid infection. Wells so placed as to receive drainage from privies are a source of danger. In limestone regions the beautiful but treacherous "springs" need to be examined with special care, since the so-called springs are often only small surface streams and brooks which emerge at the surface after a longer or shorter flow through underground channels. If seen in the beginning as a brook the water would be recognized by every one as coming from dangerous localities, while as a "spring" it might be drunk without suspicion of its filthy origin.

Deliberate water-drinking is not the only way in which typhoid fever may be contracted from polluted water. It must be remembered that while bathing in polluted water, either salt or fresh, one may accidentally swallow small quantities of water, and this has been known in a number of instances to give rise to typhoid fever.

Measures to prevent the spread of typhoid fever by means of water-supply may be summed up as follows: Our first endeavor should be directed to preventing in every way possible the entrance of typhoid germs into sewers or into privy vaults. To this end, thorough disinfection of all discharges from the body of a recognized typhoid patient must be carried out.[2] In spite of all precautions some typhoid bacilli will get into the sewage,[1] and hence such sewage must be always regarded as probably infective. Sewage should be kept out of all water sources used as drinking water-supplies. All of the usual methods of treating sewage such as sedimentation, precipitation, filtration, and the like diminish the danger of water-borne typhoid fever even if they do not altogether remove it. A more effective barrier against typhoid bacilli in water is the purification of the water-supply itself by storage, filtration or treatment with bleaching powder. Finally, if municipal methods are inadequate and there is reason to fear that typhoid bacilli sometimes get into the water-mains, security against water-borne infection may be obtained in the household by boiling the water for five minutes.

In the country the purity of the drinking-water rests largely in the control of each family. Shallow wells should be protected against surface wash and should be so located that the contents of privy vaults and outhouses can by no possibility leak through the soil into the well-water. Deep driven wells protected from surface contamination constitute a particularly safe source of supply.

MILK-BORNE INFECTION

Milk, like water, can be the means of introducing typhoid bacilli into the body. Several hundred well-marked epidemics of typhoid fever are on record which have been traced to milk containing typhoid germs. The bacilli may get into the milk in various ways. When a person suffering from a mild or unrecognized case of the disease is engaged in the collection or distribution of milk, or when flies have access to the contents of a privy vault in which typhoid bacilli happen to be present and at the same time have access to the milk-house, or when milk-cans or bottles are rinsed in impure water just before filling, or are not sterilized after removal from a house in which typhoid fever prevails, the possibilities of infection are clear enough. Unlike water, milk

Fig. 2.—The spring at the brickyard furnished an abundant supply of clear water "of pleasant taste and appearance and agreeable coolness." Following the development of a typhoid case in the cottage on the hill, 108 of the 200 workmen in the brickyard became ill with typhoid fever. (Adapted from a study of an epidemic in 1906 at Mount Savage, Md., by Stokes and Price, Maryland Med. Jour., December, 1906.)

may serve as a medium for the multiplication of typhoid bacilli so that a small amount of infected milk mixed with other milk at a creamery may lead to the distribution of many more bacilli than were originally present. Such multiplication probably goes on for only a limited period while the milk is still quite fresh. The danger of infection from buttermilk or from butter made from sour cream is much less than

2. Typhoid stools may be disinfected by adding enough hot water to cover the stools in the receptacle together with about a cupful of commercial unslaked lime (quicklime). The lime should be in lumps, broken up in small pieces and distributed over the stool. The mixture should stand for two hours. Chlorinated lime (¼ pound in 1 gallon of water) solution can also be used.

from fresh milk. Protection against milk-borne typhoid may be easily secured by boiling or pasteurizing all milk not known to be safe. Typhoid bacilli are killed by exposure for ten minutes to a temperature of 60 C. (140 F.), so that efficient pasteurization constitutes an excellent safeguard. It is plain also

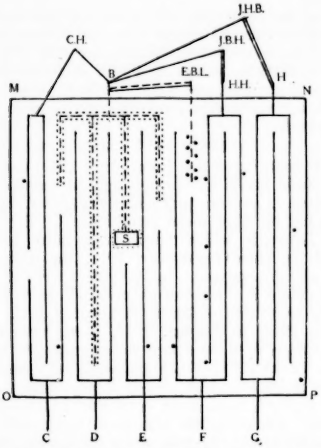

Fig. 3.—Stamford typhoid fever epidemic, April 15 to May 28, 1895 (Herbert Smith: Connecticut State Board of Health Report, 1895, p. 161). Stamford had a population of 15,000. The large square *M N O P* represents the town of Stamford. *B* is the dairy distributing the implicated milk, and the dash-lines running from *B* into the city represent the milk-route of the dairy. Each of the dots represents one case of typhoid fever, and is placed on the route of the dairy from which it was supplied with milk. There are 368 such cases on *B's* route, including the 12 around the *S*, which is meant to represent the café supplied by *B*. *B* supplied about one-eleventh of the milk used in the town. *HH* and *H* are distributing dairies similar to *B*. *CH* and *EBL* are producing farms selling milk to *B* and also peddling some themselves. The dash-line extending from *EBL* represents his personal route of 5 houses in which 8 cases of typhoid occurred. *JHB* and *JBH* are producing farms selling milk to *B* and also to distributing dairies *H* and *HH*. The double lines show the dairy to which the producer sold most of his milk. Dash lines show the apparent course of the infective agent. *C*, *D*, *E*, *F*, and *G* are other dairies having routes in Stamford.

that milk should not be distributed from farms on which typhoid fever exists, and that on all dairy farms human excreta should be regarded as highly dangerous and should be disposed of with particular care.[3]

TYPHOID FROM OTHER RAW FOODS

Besides milk some other articles of food seem particularly exposed to possibilities of typhoid contamination. Oysters and other shell-fish that have grown in sewage-contaminated waters or that have been placed to "fatten" by "floating" or "drinking" near the mouths of sewage-polluted creeks have been shown to harbor the typhoid bacillus, and when eaten raw to produce more or less extensive typhoid outbreaks. Thorough cooking of shell-fish does away altogether with the possibility of infection through this source. In the United States, inspection and control of oyster beds by state and national health authorities have greatly reduced the possibilities of danger from the use of raw oysters. Certain vegetables or berries commonly eaten uncooked may become contaminated with typhoid bacilli if night-soil is used as a fertilizer on truck gardens, or if raw sewage is used for irrigation. The use of human excreta as fertilizer for certain crops, such as celery, lettuce, or strawberries, is most undesirable. In a few instances definite outbreaks of typhoid fever have been shown to be due to the use of raw vegetables or fruits. The difficulties in the way of tracing infection to the use of such articles are plainly very great, and many investigators are of the opinion that a larger amount of typhoid fever is due to the use of contaminated raw foods than can at present be actually proved.

FLY-BORNE INFECTION

Under conditions in which human excreta are exposed to the visits of house-flies, the possibility of spreading infection through the agency of these insects is well recognized. Back and forth from privy vault to eating-table wander these bearers of infection. At the time of the Spanish-American War when lime was used in the camp latrines, flies with their legs whitened with lime were afterward seen walking over the food on the mess-tables. Conditions favoring fly-borne typhoid fever are especially favorable on the farm as well as in military encampments, lumber or construction camps, and the like. Reduction in the number of the flies, which can be effected especially by elimination of their breeding-places, of which horse-manure is one of the most common, together with proper disposal of excretal refuse, will greatly diminish if not altogether remove danger from this source. A room or hospital ward containing typhoid patients should be carefully screened in fly-time. It must be remembered that the fly can act

Fig. 4.—This sanitary privy with raised back is fly-tight and is so arranged that the buckets or tubs within do not touch the ground. (From the Virginia Health Bulletin, June, 1911.)

only as the mechanical carrier of typhoid bacilli. However disgusting and annoying the fly's habits may be, if it does not have access to material in which typhoid bacilli are present, it cannot convey typhoid fever.

3. A simple and inexpensive sanitary privy adapted for use on the American farm is described in a bulletin of the United States Department of Agriculture. This bulletin (Farmers' Bulletin 463), may be obtained free of cost from the State Board of Health or from the Department of Agriculture, Washington, D. C. It gives full working directions for the construction of the sanitary privy.

There is no evidence that typhoid fever is ordinarily air-borne. Under unusual conditions it is possible that dried excreta might be blown about as "dust" and that typhoid bacilli might then come to settle on food or possibly even be inhaled and swallowed, but this mode of infection is probably very rare. The immediate neighborhood of a typhoid patient is dangerous not because there are any typhoid bacilli floating in the air, but because of the likelihood that objects in the room—pillows, arms of chairs, doorknobs—have been accidentally contaminated in the care of the patient.

TYPHOID CARRIERS

The fact has already been mentioned that well-defined and active cases of typhoid fever are not the only ones that may be discharging typhoid bacilli. The importance of healthy typhoid carriers needs to be still further emphasized here. Recent investigations have shown that from 4 to 6 per cent. of all persons recovering from typhoid fever continue to discharge typhoid bacilli in the feces or urine or both for months and even years after complete recovery. Occasionally, also, a person who has never had a recognized case of typhoid is found to be a carrier. Plainly, such persons are likely to be starting-points of fresh infections, especially if, as in the famous

Jacksonville, Fla., 1898; Seventh Army Corps, U. S. Army; 10,759 men, none given typhoid vaccine.

U. S. Army, San Antonio, Tex., 12,801 men, all given typhoid vaccine.

Fig. 5.—Results of typhoid inoculation. (From Washington State Board of Health Bulletin, May, 1912.)

case of the New York cook, "Typhoid Mary," their occupation is concerned with the handling or preparation of food. "Typhoid Mary" was the cause of twenty-six cases of typhoid among the members of seven different families for whom she worked.

An undetected carrier on a dairy farm may be the cause of an explosive outbreak, or of scattered cases along the milk-route during a considerable period. No satisfactory means have yet been found for permanently ridding these typhoid carriers of the germs that they harbor. Carriers, when found, must be warned of the possible havoc they may scatter among relatives and friends, and so far as possible should be prevented from engaging in occupations which involve a maximum hazard to the community. Since the number and identity of such carriers in a community are at present not readily ascertainable, all sewage and the contents of all privy vaults must be looked on as possibly infectious. The chance use by a visiting typhoid carrier of an improperly constructed outhouse in a small country town or on a dairy farm may be the starting-point of a serious outbreak whose origin will always be "mysterious." While the problem of dealing with typhoid carriers is very difficult, it cannot be forgotten that the outlook in general is a very hopeful one. Any diminution in the number of water-borne or milk-borne epidemics will avoid the production of new carriers. The improvement is bound to be progressive. Every reduction in the amount of typhoid fever automatically lessens the number of carriers.

It can be seen from the foregoing that improper disposal of excretal refuse is at the bottom of most typhoid fever infection. Particularly is this so in country districts, where fly-borne infection is most likely to take place, and where the bulk of milk infection, from which city dwellers later have to suffer, also occurs.

TYPHOID VACCINATION

It has been found that injection of killed and harmless typhoid bacilli will protect against typhoid infection even in persons particularly exposed by their occupation or other social conditions. In the United States Army, in which typhoid vaccination has been compulsory since September, 1911, the disease has practically disappeared. In 1909 there were 173 cases and 16 deaths in a force of about 69,000 men; in 1912, only 27 cases and 4 deaths in about 83,000. From August, 1912, to August, 1913, there were only 2 cases. Many of these troops were engaged in maneuvers in Texas (1911-1912) and were associated more or less intimately with the civil population, among whom typhoid cases were occurring in considerable numbers. Owing to the conditions under which soldiers must live in the field or on the march, the likelihood of typhoid fever is great. In 1898 at the time of the Spanish-American War, 4,422 cases of typhoid and 248 deaths occurred in a division of 10,759 men; among 12,801 vaccinated men under very similar conditions at San Antonio, Tex., in 1911, only one case developed.

Similar results have been obtained in hospitals in which typhoid patients are cared for and in which in the past many cases have developed among the nurses. In one large hospital inoculation of the nurses was followed by a year of entire freedom from the disease among nurses and attendants for the first time in the history of the institution. The lesson is plain. All persons whose occupation tends to expose them to typhoid infection should be vaccinated. Nurses, physicians, soldiers and all those whose manner of life leads to frequent travel and to eating in a variety of restaurants, hotels, or to drinking of water of unknown source come under this head.

What is commonly known as "vacation typhoid" is chiefly the typhoid picked up by contact with infection during travel. In a word, the larger the number of places to which one resorts for food and drink the greater is the chance of crossing the trail of a typhoid carrier. Vaccination gives a high degree of protection for three years, perhaps for a longer period. For those who are not directly exposed to known typhoid infection, but who realize the possibilities of infection through intercourse of urban life, typhoid vaccination, which has been clearly shown to be both safe and efficient, offers an attractive and cheap form of insurance against typhoid fever.

RULES FOR PREVENTING TYPHOID FEVER

For the Individual:

1. Keep away from all known or suspected cases of typhoid.

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2. Wash hands thoroughly before meals. Do not use "roller towels."

3. Use drinking-water only from sources known to be pure, or if this is not possible, use water that has been purified by municipal filtration or by hypochlorite treatment or by boiling in the household.

4. Avoid bathing in polluted water.

5. Use pasteurized or boiled, instead of raw, milk.

6. Select and clean vegetables and berries, that are to be eaten raw, with the greatest care.

7. Avoid eating "fat" raw oysters and, in general, oysters and other shell-fish whose origin is not known.

8. Be vaccinated against typhoid in all cases in which any special exposure is known or feared.

For the Community:

1. Insist on the hearty cooperation of all persons with an efficient health officer.

2. Require notification and a reasonable degree of isolation of every known or suspected typhoid case.

3. Exercise strict control over the disinfection of known typhoid excreta.

4. Insist on pure or purified water-supplies.

5. Require pasteurization of milk-supplies.

6. Regard all human excreta as possibly dangerous, and control their disposition in such a way as to prevent contamination of food or drink.

THE PREVENTION OF SURGICAL SHOCK AND POSTOPERATIVE PAIN *

A. B. COOKE, M.D.
LOS ANGELES

Differ as we may as to the real nature of surgical shock, the exact factors concerned in its production and the various intricate physiologic and biologic problems involved, no one will deny that it constitutes the greatest danger of modern surgery. Certainly no more important subject can engage our thought and effort than to prevent it, or at least to minimize it, as far as possible, in every case. It is equally true that the prevention and minimizing of postoperative pain are questions which command the unfailing interest of every physician who is imbued with the true spirit of his calling. Various theories have from time to time been advanced as to the cause of shock, each one containing an element of truth, but no one of them containing the whole truth. Generally operators of large experience tend to regard surgery as merely routine daily work and to give their attention rather to the pathology involved and the mechanical execution of a predetermined procedure, than to the philosophic and the humanitarian considerations relating to the subjects on whom their skill is expended. When one stops to consider the disproportionate importance which comes to be attached to the operation itself, there is little wonder that such divergent theories are held. True, surgical shock is frequently encountered, but only an occasional patient succumbs to it. True, postoperative pain is a distressing sequel in practically every case, but pain does not kill and the patient ultimately forgets. In the satisfaction of having performed a brilliant and mechanically perfect operation, the busy surgeon is apt to regard shock and pain as minor considerations and complacently to felicitate himself and his patient on the final happy outcome. They are *not* minor considerations. To the patient at least, a surgical operation is always a formidable ordeal and he has the right to demand that he shall be safeguarded in every way possible from both danger and pain. Surgery does not fulfil its highest mission unless the welfare of the patient is at all times recognized as paramount to operative technic, though to keep it so requires a little extra time and a little additional trouble on the part of the surgeon, as well as some increase in the incidental expense.

It is the consensus of opinion to-day among both clinicians and laboratory workers that the loss of vasomotor control resulting in the reduction of the blood-pressure below safe limits is the chief factor in the production of shock. The question before us, then, is: How may a surgical operation be conducted so as to cause the least possible disturbance of the vasomotor function? I am convinced that the method of anoci-association, as worked out by Crile, offers the best means yet devised to accomplish this end. At the same time it possesses the distinct additional advantage of protecting the patient against postoperative pain.

It seems almost superfluous to say that Dr. Crile fully recognizes the importance of complete hemostasis and of expedition in operating. Being a most painstaking and notably dextrous operator himself, he regards these as elementary surgical principles. He does not hold, however, that five or ten minutes' additional time properly utilized in the average operation is criminal practice. Haste means roughness of manipulation and he emphasizes gentleness as a primary requisite to the successful employment of the method which he advocates.

THE PRINCIPLES OF ANOCI-ASSOCIATION

The four cardinal principles of anoci-association are:

1. The preliminary administration of a hypodermic of morphin and scopolamin.

2. The use of nitrous oxid and oxygen for general anesthesia.

3. The complete blocking off of the operative area by the infiltration of a solution of novocain.

4. The infiltration of all tissues traumatized which are supplied with sensory end-organs (except the skin) with a solution of quinin and urea hydrochlorid.

To these I would add a fifth, referring especially to the prevention of gas pains following abdominal operations, namely, early opening of the bowels.

1. The preliminary hypodermic of morphin and scopolamin is designed to allay apprehension and tranquillize the patient. In certain cases the psychic factor is quite as important as the physical. In all cases the preoperative management calls for far more care and attention than it usually receives. An attitude of calm decision and confidence on the part of the surgeon and of cheerful sympathy and encouragement on the part of the nurse do much to rob the coming ordeal of its terrors. The hypodermic consisting of morphin sulphate 1/6 grain and scopolamin 1/150 grain should be administered an hour and a half in advance of the operation and repeated an hour later in half the dosage, if the desired effects, that is, sleepiness and relaxation, are not obtained. Complete quiet in and about the operating-room should always be insisted on, at least until the patient is anesthetized.

* Read before the Los Angeles County Medical Society, April 2, 1914.

2. It is universally conceded that, in competent hands, nitrous oxid is preferable to ether for general anesthesia, even in face of the fact that it possesses certain inherent disadvantages. Ether is irritating and malodorous, and by the resistance it arouses in the primary stage (so-called stage of excitement) favors the development of shock. It immediately and definitely impairs the defensive powers of the patient. It lowers the blood-pressure much (two and a half times) more quickly and decidedly than nitrous oxid. The changes in the brain-cells are three times more marked under ether than under nitrous oxid, because oxidation is retarded by the latter anesthetic. Ether increases the coagulation time of the blood. It is a powerful solvent of the body lipoids, kidney, liver and other viscera, as well as the brain, and in consequence there is always a large increase in the amount of waste products to be eliminated thereby favoring the development of nephritis, pneumonia and other postoperative complications. The nausea and vomiting incident to ether anesthesia are both distressing and dangerous.

Nitrous oxid is not unpleasant to take; it induces anesthesia almost at once, and the effect passes off as quickly as it is produced. Properly combined with oxygen and administered by a skilled anesthetist, it is now regarded as safe as ether, even for prolonged operations — far safer when the possible and not uncommon sequelae of ether anesthesia are taken into account. The anesthesia produced by nitrous oxid is not so deep and death-like as that produced by ether; but this is rather an advantage, since it necessitates thoroughness in the technic of the accompanying local anesthesia and demands gentleness of manipulation at every step of the operation.

The disadvantages of nitrous oxid are physical and financial rather than clinical. The apparatus required is cumbersome and costly and the gas itself is expensive. But these are negligible items when compared with the positive benefits it offers; and neither the surgeon nor the hospital is justified in declining to provide anything and everything which will make for the safety and comfort of the patient.

3. The combination of local with general anesthesia may be termed the crucial feature of anoci-association. It is based on the hypothesis that, however profoundly the patient may be under the influence of an inhalation anesthetic, the brain-centers are still capable of receiving impressions from peripheral stimuli and the brain-cells still capable of liberating impulses in response, otherwise the patient would be dead instead of merely unconscious. The only way by which this connection may be broken is by blocking off the area to be traumatized with a quickly acting, non-toxic local anesthetic. Novocain in 0.25 per cent. solution is the agent employed. First the skin in the line of the proposed incision is carefully infiltrated and then the subjacent tissues step by step as they are encountered. The application of pressure renders the anesthetic effect practically instantaneous. When the abdominal cavity is to be opened the peritoneum should first be thoroughly infiltrated in the line of the incision and the edges everted and blocked off for an inch on either side to protect it in the further manipulations. Complete relaxation is the gauge of thoroughness. If the technic is properly carried out, an incision in the upper abdomen may be approximated and closed with as great facility as one in the lower abdomen.

The benefits of the local anesthesia may and should be extended to the internal organs whenever indicated. Many viscera are unprovided with sensory nerve terminals and, if handled gently, may be operated on with impunity without the use of the local anesthetic. For instance, it is entirely possible in the absence of undue traction to perform the visceral suturing in a gastro-enterostomy without the least disturbance, even when the general anesthetic is suspended. On the other hand, certain of the internal organs, notably those of the pelvic cavity, have an abundant sensory nerve-supply and should be as carefully blocked off before proceeding with the operation as was the region of the initial incision. In a hysterectomy, for example, infiltration of the round ligaments and of the tubes and broad ligaments at the points to be sectioned should first be carefully made and then extended to the peritoneal folds in front of and behind the uterus as these structures become accessible. The appendix may be blocked off by infiltrating the meso-appendix and likewise the base of the gall-bladder and other areas as indicated.

4. The anesthetic effect of quinin and urea hydrochlorid is maintained for from forty-eight to seventy-two hours; that of novocain is quite transient. This in brief is the explanation of the fourth principle of anoci-association. Before closing the wound all stumps containing sensory nerves are infiltrated with a 0.25 to 0.5 per cent. solution of the quinin salt and the several tissues of the wound itself similarly treated as was the case with the novocain solution in making the incision. By this means the parts are held anesthetic until the process of repair is established and the patient escapes much of the customary postoperative discomfort.

Objection to the use of this agent is sometimes made, doubtless will be on this occasion, on the ground that it is dangerous, that it often causes necrosis, etc. In the light of my personal experience I can only say that such dangers are purely imaginary. If the solution is used in proper strength and the technic of its employment is correct in every detail, there is no ground for apprehension. Of course it must be recognized that the salt is a chemical irritant, and the man who injects a 4 per cent. solution into the skin and subcutaneous tissues is likely to meet with disaster. The slight edema sometimes noticed in the wound area after the use of the weaker solution is of no consequence and in no case coming under my observation has it seemed in any way to interfere with the healing.

It will be recognized at once that the successful employment of the novocain and quinin and urea hydrochlorid solutions requires a dexterity and a familiarity with the technic of local anesthesia which is not acquired without considerable experience. The degree of local anesthesia demanded in this technic is as complete and perfect as though no other means were used. No man not accustomed to operating under local anesthesia can expect to make a brilliant success of his first case, nor indeed of his first half dozen cases. On this point Bloodgood[1] remarks:

> It is important, in the first place, to emphasize here that success depends most perhaps on the technic of local infiltration. No surgeon who has not performed many operations under local anesthesia only, will be able to get the same results from the combined method. When the patient is awake and you attempt an operation under local anesthesia, you will always be informed when a painful act takes place and you

1. Studies in Blood-Pressure, Ann. Surg., December, 1913.

will be surprised at the difficulty of making such an operation perfectly painless. Very few surgeons in this country have educated themselves in the difficult technic of local infiltration. They are not familiar with the sensitiveness of the different tissues and the varying degrees of discomfort following different manipulations. It is my opinion that the first step in the development of this new technic is to perform as many operations as possible under local anesthesia.

With reference to the securing of early bowel-movements as a means of preventing gas-pains in abdominal surgery, which I have presumed to suggest as a fifth important step in the technic of anoci-association, let me say that my own experience has borne out the wisdom and beneficence of this plan in a long series of cases. Before adopting Crile's technic it had been my custom for a number of years to start the process of alimentary elimination on the second day following all abdominal operations unless some positive contra-indication existed. And I have never had cause to regret such a course. If one has confidence in the thoroughness of his work, including the security of his wound closure, I cannot understand what he expects to gain by confining the bowels for four, five or six days while the nausea and auto-intoxication continue and the suffering from gas-pains becomes constantly more severe.

It has been my regular plan to begin the administration of calomel in powder form, usually combined with cerium oxalate, twenty-four to thirty-six hours following the operation, giving a half grain of the former and one grain of the latter at a dose every hour until six doses are taken. Four to six hours after the last dose, or sooner if indicated, a purgative enema is given which generally inaugurates active peristalsis; if not, this is repeated at intervals until the desired effect is produced. It is seldom necessary to administer salts or castor oil when this plan is followed, and the combination of calomel and cerium oxalate, as a rule, acts most happily in allaying postoperative nausea. The few days or even hours of discomfort saved the patient without the addition of any appreciable element of risk seem to me not only fully to justify this routine, but also to render it highly desirable from every point of view.

VALUE OF THE METHOD

After stating that for more than three years he had employed the anoci-association technic in every operation, Bloodgood announces his deliberate conclusion as to the value of the method in these convincing words:

> From my observation I am convinced that any operation performed under this method of anesthesia, properly carried out, will result in less shock; the mortality will be lower; the postoperative discomforts and complications will be greatly reduced; the period of disability very much shortened. All this has certainly been accomplished in my own experience, and I think I have convinced my associates, both surgeons and nurses, that the method has great advantages over ether. I am also confident that no operating surgeon will come to the same conclusions until he has faithfully given this method a fair trial over a considerable period of time.

My own convictions on the subject could not have been better expressed. I am sure that the use which I have made of the method has rendered possible the best and most satisfactory work of my surgical experience. In the five months immediately preceding my removal to California, Dr. J. A. Gaines of Nashville, and myself, working together, employed it in about one hundred and twenty-five major operations covering virtually the whole field of surgery. Since coming to Los Angeles last fall I have had the opportunity, for quite obvious reasons, of applying the method in only about thirty cases including cholecystostomy, appendectomy, herniotomy (five), gastro-enterostomy (two), hysterectomy and various operations on the adnexa. In this series, the nitrous oxid has not been uniformly available; but even with ether as the inhalation anesthetic the advantages of this technic have been evident to both the physicians and the nurses who have seen and followed the work. To mention a single example: A gastro-enterostomy for duodenal ulcer was performed on a frail woman of 52. She had no shock, received no opiate or sedative at any time, suffered absolutely no pain and did not even know where the incision had been made until it was shown her on the ninth day. She was sitting up in bed on the fourth day, sitting in a chair on the seventh day and left the hospital on the twelfth day.

Contrasting the mortality rates at Lakeside Hospital before and after the introduction of the anoci technic, Crile shows that for the year 1908, the year preceding its introduction, it was 4.2 per cent.; for the year 1912 operations were performed on 2,672 patients, including all kinds of acute emergency cases, with a mortality rate of 1.9 per cent. In the last thousand operations previous to the time of the preceding report the mortality rate was 0.8 per cent.

Here I submit the question: whatever views one may hold as to the theories on which anoci-association is based, there would seem to be no just ground for doubting or discrediting the practical benefits its application yields. The ethical questions involved I shall not discuss. They are sufficiently apparent and each individual must face and solve them for himself.

In conclusion, I trust I may not appear dogmatic when I say that what a man's judgment approves and his experience confirms, that he knows. If there were no other data than those which my own personal work affords, I should still feel warranted in saying that, in my opinion, anoci-association constitutes the most important contribution to the progress of surgery in the past quarter of a century.

1020 Story Building.

RESULTS FROM THE USE OF LIVING LACTIC ACID BACILLI ON DIPHTHERITIC THROATS IN TWO GROUPS OF CASES

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The apparent lack of clinical benefit and subsequent failure to lessen the time of housing in the contagious ward of the City and County Hospital, with the use of living cultures of lactic acid bacilli, led us to abandon further tests in November and December, 1913.

In the fifteen or eighteen cases taken at random in which the lactic acid bacilli were used, there was no appreciable difference in the average time of quarantine from the throats treated in the ordinary manner with mild antiseptic gargles and various local applications.

The recent reports of favorable results have stimulated us to make another and a more detailed attempt, using both the living cultures of lactic acid bacilli and naturally soured milk, in each instance obtaining a control case so far as possible alike.

Mulford's (Bulgarian Type) cultures of living bacilli were used, after testing their activity by obtaining growths on agar-slants. Nose and throat were sprayed two, three and four times daily. No antiseptics were employed and individual atomizers were maintained. The patients receiving the naturally soured milk used this as a gargle and as a nasal douche four and five times daily.

The following six cases with their controls were taken at random from a group of twelve:

CASE 1.—*Patient* (No. 66924).—Man, aged 27, admitted March 7, 1914, after being sick two days. On admission, temperature 102.6, pulse 112. Distinct membrane over both tonsils and posterior pharynx, with marked edema of uvula. Antitoxin, total, 20,000 units: 5,000 units before admission, 5,000, 5,000, 5,000 after. Lactic acid suspension spray every day at 10 a. m. and 2, 6 and 10 p. m. Cultures: March 9, 10, 12, 14 and 16, positive; 17, negative; 18, throat positive, nose negative; 20, throat negative; 21, throat and nose negative. Total days in hospital, 14.

Control (Patient 66892).—Boy, aged 11, admitted March 5, 1914, after being sick three days. On admission, temperature 100, pulse 130. Distinct membrane over greatly hypertrophied tonsils and pharynx, and marked edema throughout this membrane, being more extensive than in the foregoing case. Antitoxin, total 25,000 units: 10,000, 10,000, 5,000 all after admission. Locally, Seiler's solution as a gargle four times a day. Cultures: March 10 and 13, positive; 14, throat negative; 15, throat and nose negative. Total days in hospital, 11.

CASE 2.—*Patient* (No. 67013).—Nurse, aged 26, admitted March 11, 1914, after being sick two days. On admission, temperature 103, pulse 115. Distinct membrane on right tonsil and pharynx. Antitoxin, total, 13,000 units: 5,000 units before admission, 5,000, 3,000 after. Lactic acid spray, nose and throat, 10 a. m. and 2 and 6 p. m. Cultures: March 14, 16, 21 and 26, positive; 29, negative; 30, throat and nose negative. Total days in hospital, 20.

Control (Patient 66952).—Nurse, aged 23, admitted March 8, 1914, after being sick two days. On admission, temperature 100, pulse 100. Membrane as above. Antitoxin, total, 30,000 units. No sprays. Cultures: March 10, 13 and 15, positive; 16, negative; 17, throat and nose negative. Total days in hospital, 11.

CASE 3.—*Patient* (No. 66587).—Nurse, aged 27, admitted Feb. 18, 1914, after being sick two days. On admission, temperature 100, pulse 92. Distinct membrane over entire right hypertrophied tonsil and posterior pharynx. Antitoxin, total, 25,000 units: 8,000, 5,000, 8,000, 4,000. Lactic-acid spray, 10 a. m. and 2 and 6 p. m. Cultures: February 18, 20, 22, 25 and 27, and March 3, 5, 6, 8 and 10, positive; 11, negative; 12, throat and nose negative. Total days at hospital, 23.

Control (Patient 66699).—Nurse, aged 23, admitted Feb. 23, 1914, after being sick two days. On admission, temperature 100, pulse 120. Distinct membrane over both tonsils, most extensive over right, dirty gray in appearance. Antitoxin, total, 10,000 units. Locally, Seiler's solution as a gargle four times a day. Cultures positive up to March 9, except one negative, March 5; following this, March 12, 15, 18, 21, 24, 27 and 30, and April 2, positive; 4, negative; 5, throat and nose negative. Total days at hospital, 42.

CASE 4.—*Patient* (No. 66830).—Boy, aged 16, admitted March 1, 1914, after being sick three days. On admission, temperature 98.6, pulse 120. Distinct membrane over both tonsils. Antitoxin, total, 9,000 units: 3,000 before, 3,000, 3,000 after. Lactic-acid spray, nose and throat, three times a day. Spray discontinued March 19. Cultures: March 1, 10, 11, 12, 13, 15, 16 and 18, positive; 20, negative; 21, throat and nose positive; 22, negative; 23, throat negative, nose positive; 24, positive; 27, negative; 28, throat negative, nose positive; 30, negative; 31, throat and nose negative. Total days in hospital, 31.

Control (Patient 66824).—Nurse, aged 24, admitted Feb. 28, 1914, after being sick two days. On admission, temperature 101, pulse 115. Distinct membrane over both tonsils, extensive with more edema. Antitoxin, total, 11,000 units: 3,000, 2,000, 3,000, 3,000. Locally, Seiler's solution as a gargle four times a day. Cultures: February 28 and March 8, positive; 10, negative; 11, throat and nose negative. Total days at hospital, 12.

CASE 5.—*Patient* (No. 66497).—Nurse, aged 25, admitted Feb. 13, 1914, after being sick two days. On admission, temperature 102, pulse 110. Dense membrane over both tonsils and pharynx. Antitoxin, total, 5,000 units, single injection. Sour-milk gargle and nasal douche four times a day. Cultures: February 13, 22, 24, 25, 26 and 27, positive; 28, negative; March 29, throat and nose negative. Total days at hospital, 17.

Control (Patient 66553).—Boy, aged 7, admitted Feb. 16, 1914, after being sick two days. On admission, temperature 100, pulse 102. Distinct membrane over both tonsils and pharynx. Antitoxin, total, 5,000 units, single injection. Locally, Seiler's solution as a gargle four times a day. Cultures: February 16, 19 and 22, positive; 24, negative; 25, throat and nose negative. Total days at hospital, 10.

CASE 6.—*Patient* (No. 66776).—Nurse, adult woman, admitted Feb. 24, 1914, after being sick one day. On admission, temperature 101, rising to 102.8 at 8 p. m.; 99.8 February 26, and normal, February 28. Distinct membrane over both tonsils. Antitoxin, total, 5,000 units, single injection. Sour-milk gargle and nasal douche four times a day, continued until March 12. Cultures: February 25 and March 5, positive; 6, negative; 8, throat and nose positive; 10, positive; 11, negative; 12, throat and nose negative. Total days at hospital, 15.

Control (Patient 66770).—Man, aged 20, admitted Feb. 25, 1914, after being sick one day. On admission, temperature 101, pulse 96. Distinct membrane over both tonsils. Antitoxin, total, 3,000 units, single injection. Locally, Seiler's solution as a gargle four times a day. Cultures: February 25, positive; March 4, negative; 5, throat and nose negative. Total days at hospital, 9.

CONCLUSIONS

The average quarantine period of the six cases reported in which the lactic acid bacillus was used is twenty days.

The average quarantine period of the six controlled cases treated locally only with Seiler's solution as a gargle is sixteen days.

The average quarantine period of fifty-seven cases admitted to the hospital during January, February and March, 1914, comprising all cases discharged with the required cultures, is twenty-one days.

Lactic acid bacilli in our experience hasten the disappearance of diphtheritic membrane, but will not produce cultures negative to the bacillus.

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Longevity in Indiana.—In the Indianapolis *Star*, May 17, Dr. William B. Clarke gives a long list of names of men and women who surpassed the age of 90, of whom forty-nine reached 100 or more. Of these, one lived to be 120, one was 119, another 115 and still another 114. Six died within a few weeks or months of the century mark. Eight centenarians died in 1912. Fifteen physicians reached ages between 87 and 100, five of whom are still living. One physician, Dr. Pierre Beaugrande, of Mishawaka, reached the century mark, dying April 10, 1914. The next oldest was Dr. W. H. Wishard of Indianapolis, who died Dec. 9, 1913, at the age of 97 and some months.

V. 6
1914

THE USE OF HERUDIN IN THE TRANSFUSION OF BLOOD*

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The present communication is the last of three reports on experimental work undertaken to develop a more widely useful method of blood transfusion than those already existent. This work was inspired by the recent advances in the study of blood coagulation by W. H. Howell and other investigators of the Baltimore school, which suggested that the practical difficulties of developing a safe and easy transfusion method might be met on a more rational basis in the light of better knowledge; and that the newer laboratory methods of estimating the various factors of coagulation would be a help in forming a more precise judgment as to the efficacy or non-efficacy of measures calculated to prevent harmful changes in transfused blood.

The first part of our experimental work was concerned with influencing the initiative changes of coagulation through preventing or hindering thromboplastin formation by the use of paraffin and a suitable instrumental technic.[1]

The second part of this work resulted in the further development of a practical form of apparatus adapted to paraffin and herudin methods, and especially designed to enable a single operator to perform a transfusion, if necessary, without trained assistance.[2]

The third part of our investigations, concerning herudin, has been in progress along with the work already reported, but we have thought best to reserve the publication of this work until satisfied that the results warranted practical application.

Oxalated, citrated and fluorided plasmas are well known in the physiologic laboratories, and sodium citrate is reported to have been used as an anticoagulant for small quantities of transfused blood. Oxalate and citrate solutions act by fixing the calcium of the blood, which is a necessary factor in spontaneous coagulation. This decalcification is, of course, a change produced by a chemical reaction in the blood, and is theoretically, at least, undesirable. The use of herudin as an anticoagulant is not open to this objection.

Herudin is the active principle of a secretion derived from the buccal glands of the pond-leech, *Sanguesuga medicinalis*, and has been classed by Franz as a secondary albumose. Its physiologic properties are variously regarded by different investigators. Morawitz believes that it acts by neutralizing thrombin and prothrombin (thrombogen). Shittenhelm and Bodong believe that it neutralizes neither of these factors but reacts with some, as yet unknown substance, which is derived from the plasma. Mellanby concludes, from what appears to be substantial experimental evidence, that herudin contains an antibody for prothrombin and also a very energetic antibody for thromboplastin (kinase).

It may be concluded fairly from the available evidence that herudin has a decided effect on the prothrombin-antithrombin balance and that it has a neutralizing action on thromboplastin. This action is best illustrated diagrammatically.

The scheme of representation is based on Howell's theory of the mechanism of coagulation, and provides, we believe, an adequate explanation of the phenomena which have been observed. According to this theory the potential factors of coagulation may be expressed as shown in the diagram of the circulating blood (Fig. 1 *A*). The fibrinogen and calcium occupy a neutral position but have a potential affinity for prothrombin. The antithrombin and prothrombin have an affinity for each other and are loosely combined. This combination constitutes a balance, the so-called antithrombin-prothrombin balance, which, in normal circulating blood, is not quite equal, because there is a slight

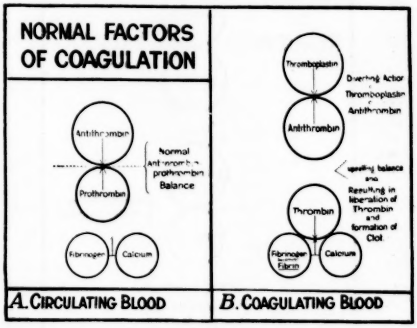

Figure 1.

preponderance of the antithrombin. If anything happens to upset this balance, so that the antithrombin side is weakened, then some of the prothrombin is released, and, in the presence of free calcium, becomes thrombin; and this thrombin reacts with fibrinogen to form a clot.

This action is seen in Figure 1 *B*. Here the coagulative process is initiated by the advent of another element, thromboplastin, which, having a very marked affinity for antithrombin, diverts it from its prothrombin attachment, and clotting ensues in the manner indicated.

In Figure 2 it will be seen that the action of herudin is to intervene and bind the thromboplastin, thus preventing the deviation of antithrombin from its prothrombin attachment.

There is considerable literature on the experimental use of herudin and there are some reports on its therapeutic use by intravenous injection for eclampsia, but no mention of its use as an anticoagulant for transfusing human blood.

From our experimental work it has become evident that herudin affords a convenient alternative for the paraffin method of transfusion under most circum-

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* The spelling used in this article for the name of the active principle of the secretion derived from the buccal glands of the pond-leech is that given to it by the discoverer, Friedrich Franz.—ED.

* Because of lack of space, this article is here abbreviated by omission of the bibliography. This, however, will appear in the author's reprints, a copy of which will be sent by the authors on receipt of a stamped, addressed envelope.

1. Satterlee, H. S., and Hooker, R. S.: Experiments to Develop a More Widely Useful Method of Blood-Transfusion, Arch. Int. Med., January, 1914, p. 51.

2. Satterlee and Hooker: The Further Development of an Apparatus for the Transfusion of Blood, Surg., Gynec. and Obst., 1914 [not yet published].

stances. The amount of herudin necessary, with our apparatus, is so small that its use may not be contraindicated even in those pathologic conditions in which there is already an excess of antithrombin or a deficiency of prothrombin in the circulating blood of the recipient.

Sievert has published a series of experiments which indicate that intravenous injections of herudin in rabbits are toxic in very large doses, that is from 25 to 50 mg. per kilogram of body-weight, the toxicity showing itself by changes in respiration and temperature, apathy, somnolence and albuminuria. Sievert states that the higher dosage, if quickly repeated, may result fatally, and that necropsy reveals hyperemia and petechial hemorrhages of the kidney and spleen but no other lesions. Other observers have found comparatively little or no ill effect from the intravenous use of large doses of herudin. Kaposi has given 40 mg. of herudin in normal salt solution by intravenous injection to a 2-kg. rabbit without harming the animal, and designates this proportion, 20 mg. per kilogram of body-weight, as the normal dose for

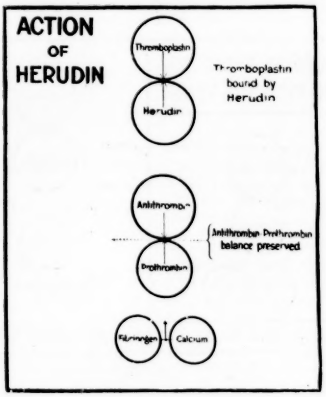

Figure 2.

experimental work. Rimann and Wolf, using this dosage, particularly state that no disturbance of health was noted as a result. Cowie has given thirty-five intravenous injections of herudin to a rabbit in doses increasing from 10 mg. to 22 mg. in twenty-six days, and maintained the last-mentioned dosage until the final injection, the total period of treatment covering fifty-four days. At the end of this time the animal had gained in weight and was in every respect perfectly well. Bodong has given from 23 to 73.25 mg. per kilogram of body-weight to rabbits, and states that it has no influence on the circulation or the respiration and is in no other way harmful to the animal. Von Hertzen and Ohman have confirmed Bodong's observation in a series of twelve experiments and concluded that herudin has no disturbing effect on the heart and blood-vessels. Abel, Rowntree and Turner have used very large quantities of herudin in "vividiffusion" experiments on dogs without apparently impairing the normal physiologic condition of the surviving animals. Dienst reports that he has given 200 mg. in 50 c.c. of salt solution by intravenous injection to a patient with very severe eclampsia, with most excellent results; and Engelmann has reported fourteen cases of eclampsia treated in this way with doses of from 200 to 300 mg.

Rimann and Wolf, in a series of eight experiments on the circulating blood of rabbits, have found that 20 mg. of herudin per hundred gm. of blood (normal dosis of Kaposi) renders the blood uncoagulable for four and a half hours, and that 10 mg. per hundred gm. of blood results in a shortening of the period of incoagulability to from one and a half to one and three-fourths hours. In these experiments the herudin was injected intravenously and the amount of circulating blood was calculated as one-tenth of the body-weight. The evidence of a coagulative tendency in the circulating blood following the injection was obtained by introducing a thread of catgut within the blood-current, according to the method of Trendelenburg. This catgut was withdrawn at varying intervals and the earliest appearance of fibrin formation was noted.

EXPERIMENTAL BASIS OF THE METHOD

Our first aim in experimenting with herudin was to determine the minimal amount of this substance which, when used in conjunction with the best available technic, would serve to prevent coagulative changes for a sufficient length of time to insure a safe transfer of blood from donor to recipient. The first experiment of this series was designed to show the amount of herudin necessary to defer coagulation from one-half to three-quarters of an hour when mixed with blood which was withdrawn directly from the vein so that there was the least possible chance of contamination with traumatized tissue. In this experiment no paraffin was employed, the blood being taken from a vein in 1-c.c. glass pipets and transferred immediately to six glass tubes containing varying amounts of herudin in 0.9 per cent. sodium chlorid solution.

From this experiment it was estimated that about 3.5 mg. of herudin to 100 c.c. of blood would be requisite for purposes of transfusion without the aid of paraffin, provided good technic was employed in obtaining the blood free from admixture of tissue juices.

This, in actual trial with our regular apparatus, was found to be the case; but the time of onset of coagulation varied within fairly wide limits — from seven to fifteen minutes.

When a paraffin coating was applied to the tip and the neck of our transfusion pipet it was found that the amount of herudin could be reduced by half, or to 1.5 to 1.8 mg. per hundred c.c. of blood, and that under these conditions there was also a twofold lengthening of the time of onset of coagulation. This meant a fourfold increase of efficiency of the herudin in the presence of a paraffin lining of the tip of the transfusion pipet.

As compared with a 30-c.c. piston-syringe with cannula 1 mm. in diameter and 30 mm. in length, 4.0 mg. per hundred c.c. of blood gave a clotting-time of ten minutes and thirty seconds for the syringe method, whereas 1.5 mg. per hundred c.c. of blood gave a clotting-time of thirty minutes for the paraffin-sealed pipet; and this, by a simple computation, shows a relative efficiency of approximately 1:8 in favor of the pipet.

To demonstrate the effect of herudin as applied to our method of transfusion, we have appended a table including all of our experimental and clinical transfusions with herudin in which no special factors were introduced (as varying pressures in delivery of blood, etc.), which would influence the onset of coagulation in the blood which was reserved in the pipet for observation. Experimental Transfusions 5 and 6, in which no paraffin was used as a lining for the tip of the pipet, are included in this table for the special purpose of comparison with our preferred method, in which the tip of the pipet is paraffin-sealed and lined.

EXPERIMENTAL AND CLINICAL TRANSFUSION WITH HERUDIN

Case and Experiment No.	Amt. of Blood Transfused c.c.	Amount of Herudin Used mg.	Dilution of Herudin with NaCl Sol.	Time of Onset of Coagulation, Minutes	Time of Complete Coagulation, Minutes
*Exp. Transfusion 5	160	3	1/1,000	†	12
*Exp. Transfusion 6	150	3	1/1,000	†	13
Exp. Transfusion 2	100	5	1/1,000	40	†
Exp. Transfusion 7	150	3	1/1,000	22	†
Exp. Transfusion 11	200	3	1/500	29½	33
Clin. Case 1:					
Cylinder A	200	3	1/500	20	†
Cylinder B	200	3	1/500	16	†
Clin. Case 2:					
Cylinder A	220	3.4	1/450	35	†
Cylinder B	220	3.4	1/450	30	†
Exp. Transfusion 15	160	3	1/500	21½	†
Exp. Transfusion 17	150	3	1/500	28½	35
Exp. Transfusion 18	220	3	1/500	35	38‡
Exp. Transfusion 19	220	3	1/500	30	38

* In these experiments the tip of the pipet was not lined with paraffin.
† Not observed.
‡ No clot at 38.

PRACTICAL APPLICATION OF THE METHOD

In making use of herudin for transfusion we have employed our regular pipets and cannulas, but we have dispensed with the paraffin coating of the cylinders. We have prepared the pipets by introducing from 3 to 5 c.c. of a 1:500 solution of herudin in salt solution, flowing this liquid very thoroughly over the interior of the cylinder and draining away the excess through the tip of the pipet just previous to use. From 1.5 to 2 c.c. of this solution, or approximately 3 mg. of herudin, are retained by adherence to the walls of the pipet, and for more than twenty minutes this is sufficient to prevent 220 c.c. of blood, drawn into the pipet, from clotting.

With the exceptions already noted, the operation with herudin is conducted in precisely the same way as with the paraffin-coated apparatus. The preparation of the pipets is the same, except that the first coating of the cylinders with paraffin is omitted. A partial coating with paraffin, however, is advisable. This coating should be done by aspirating the sterile, melted paraffin mixture just within the neck of the cylinder and expelling it again. This use of paraffin, from the tip to the neck, is primarily to insure an air-tight junction of the pipet tip with the metal bushing, and of the latter with the neck of the cylinder, but it also has a demonstrable effect in lessening thromboplastin formation during the aspiration of blood, and permits the employment of a minimal quantity of herudin. The herudin method may be employed without any paraffin whatever by using a 1:300 solution of herudin for coating and with care that the interior of the pipet tip is perfectly smooth and brightly polished, and that all connections are tight against air-leakage; but these contingencies are so surely and easily provided for by aspirating a little sterile paraffin just above the neck of the pipet, that the latter method is to be preferred. Any small receptacle with a cover and alcohol heating device will answer the purpose for sterilizing and holding the paraffin. The hardened paraffin may thus be carried with the apparatus, and the sealing process may be done at the time of operation, allowing ten or fifteen minutes for the pipet to cool, before coating with herudin solution.

It would, no doubt, be possible to obtain a more accurate estimate of the coagulation factors in transfused blood, and also of the inhibiting effect of herudin, by quantitative determinations of thrombin and of thromboplastin in specimens of such blood under varying conditions. We believe, however, that the simple observation of onset of coagulation together with the amounts of blood and of herudin, as recorded in the table, justify our conclusions. We hope at some future time to follow our present work with a more complete investigation of the subject with the aid of more precise laboratory methods.

175 East Seventy-First Street.

ARTHROPLASTY FOR INTRA-ARTICULAR BONY AND FIBROUS ANKYLOSIS OF TEMPOROMANDIBULAR ARTICULATION

REPORT OF NINE CASES *

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CHICAGO

Arthroplasty, or the technic for the formation of new joints, may be divided into seven different stages in its evolution, and each stage has been initiated or created by the work of a single individual and then his succeeding school. These stages are:

1. The formation of fibrous or flail joints, as of the shoulder and elbow (Langenbeck, Ollier, Julius Wolff and others). These were desired sequences following resections for diseased joints, as tuberculosis, syphilis, pus infections, etc.

2. The restoration of mobility in a bony ankylosed joint by the interposition of muscle and fibrous tissue between the separated ends at the ankylosed joint, as in the mandible (Helferich, 1893, who was the father of this method).

3. Pseudo-arthrosis developing after osteotomies in the neighborhood of joints (Lorenz), as in hip ankylosis.

4. The transplantation of pedicled flaps of fascia and fat and capsule, with the production of a movable, sliding joint and a hygroma (Murphy, 1902), in the mandible, hip, knee, elbow, shoulder and wrist.

5. The homotransplantation of the articular ends and surfaces of bone (Lexer, 1906), particularly in the knee.

6. The transplantation of free fat and fascia (Lexer).

7. The interposition of foreign material to make the joint, from Péan's metallic joint down to Kraske, Baumgarten, Roser and Baer's heterovisceral implantations.

* Read before the meeting of the American Surgical Association, New York, April 9-11, 1914.

The fourth stage, or the transplantation of pedicled flaps of fascia with fat and capsule, is the one now in vogue. It is to be hoped that the free fascia and fat transplantation of Lexer will with future experience sustain the good results which its originator predicts for it, as there are many cases in which a pedicled fat and fascia flap is not available, on account of the anatomic conditions and particularly the pathologic sequences preceding or associated with the development of the ankylosis.

Heteroplasties and the insertion of foreign material are doomed to disappear from this field of work, as foreign absorbable material, if aseptic, must eventually be supplanted by connective tissue; and while a flexible joint may be present, a movable sliding joint cannot result from such interposition. Non-absorbable metal materials can be serviceable only under a few very favorable conditions.

So much for the general subject of new joint formation or arthroplasty. Concerning arthroplasty of the jaw, I would say that ankyloses of the jaw may be

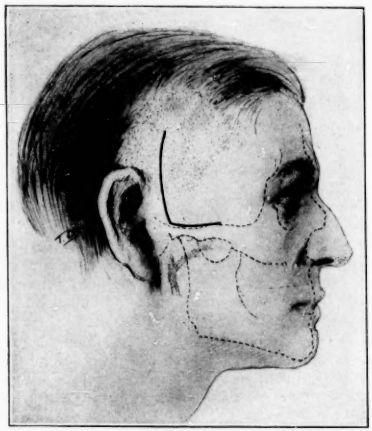

Fig. 1.—The line of incision and the bony outlines at the point of ankylosis.

divided into (1) the intra-articular fibrous and osseous and (2) the extra-articular cicatricial varieties. The latter may also be termed the interalveolar or cheek cicatricial fixation, the result of sloughing in the mouth and infections of the subzygomatic zone.

ROUTES OF INVASION OF THE JOINT

The most common type of ankylosis is the bony. It may be due to:

1. An extension of a suppuration from the middle ear (Case 1).
2. A mandibular osteitis extending to the glenoid cavity.
3. A metastasis from foci of infection elsewhere in the body (Case 9), or it may be part of a general metastatic arthritis (Case 7).
4. It may be the result of a transmitted trauma from the chin (Case 4).

The ankylosis may involve the head of the mandible only, or it may extend across to the coronoid process, so that the lower maxilla is firmly welded to the temporal bone and the base of the zygoma by the new bone formation. It is common to have it include the anterior root of the zygoma.

In most cases the cause of the ankylosis is a middle-ear suppuration. If one follows the anatomic course of these suppurations, it is obvious how the mandibular articulation becomes involved. Infections of the middle ear penetrate in five different directions:

1. The infection may pass backward into the mastoid.
2. It may pass through the posterior wall of the petrous bone into the posterior cerebral fossa.
3. It may penetrate the attic of the ear, form an abscess within the middle cerebral fossa and rupture externally just above the tip of the ear.
4. The abscess may burrow forward and rupture into the glenoid cavity or pass over the base of the zygomatic process into the mandibular articulation.
5. The abscess may burrow forward into the subzygomatic temporal muscle zone and produce a great phlegmonous myositis with subsequent cicatricial contraction.

In the case of para-articular fixation, due to the formation of cicatrices, the condition is usually caused by a sloughing of the mucous lining of the cheek, such as follows typhoid fever, scarlet fever or measles (noma), infections of the alveolar processes, subzygomatic infection from penetrations through the mouth or cheek, from infections of the scalp or cranium by producing destruction of the fascia and temporal muscle which may contract in the process of repair and so cicatrize as to fix the jaw absolutely on that side.[1]

DIFFERENTIAL DIAGNOSIS

The differential diagnosis as to which side is involved is often extremely difficult. When the ankylosis is bony, there is complete fixation of the jaw. When the ankylosis is fibrous, there is some motion in the jaw, depending on the degree of joint involvement (Case 3). In the para-articular ankyloses, there is always some motion in the jaw. In the intra-articular ankyloses, there is sometimes a little lateral motion on the unaffected side, from 1/60 to 1/100 inch on forced effort at opening the mouth, a point in diagnosis which is well worth remembering.

I have learned by clinical observation and experience that a diagnosis of the side involved can be made accurately (when only one side is affected and if the condition occurred early in life) by noting the deviation and contrast formation of the two sides of the face. The face on the side of the ankylosis is full and round and apparently normal in appearance. On the opposite or unaffected side it is flattened and deformed. The chin is always more or less retracted and deviates toward the ankylosed side. If the ankylosis occurs after the patient has attained full growth, this deviation is only slight in degree; but if it occurs in infants or children, the deviation and retraction are marked, increasing in degree as the patient grows older. The earlier the ankylosis has occurred in life, the greater the deformity of the face (Case 1). The fixation of the joint interferes with the proper development of the jaw. The epiphysis of the condyle is the means through which the ramus grows in length.

1. Murphy, John B.: Use of Palate Mucous Membrane Flaps in Ankylosis of the Jaw Due to Cicatricial Formations in the Cheek, THE JOURNAL A. M. A., July 26, 1913, p. 245.

This growth is arrested by the ossification across the epiphyseal line before the normal time for ossification, which is the fifteenth year. All of the other five centers of ossification are united by bony formation before birth. The absence of use of the jaw undoubtedly is a contributing factor to its aplastic condition. When the ankylosis is a recent one there is not much deformity (Case 4).

PHYSICAL FINDINGS

The physical findings in these cases are the following:

1. There is flattening of the jaw on the unaffected side, most pronounced near the tip of the chin.

2. When the patient attempts to open his mouth, the teeth move from 1/60 to 1/100 inch downward and deviate a little in the direction of the ankylosed side, because of a slight sliding forward of the mandibular articulation on the unaffected side as the muscles of the neck are put on tension in the effort made to open the mouth.

3. A sliding motion on the unaffected side can be felt by the palpating fingers, and the muscular activity on that side is very much greater on attempted opening of the mouth than on the ankylosed side.

4. The muscles on the ankylosed side are more atrophied than those on the unaffected side.

In only one case (Case 1) of this series of nine intra-articular ankyloses of the temporomandibular articulation was there failure to diagnose the side affected, and in that case I was entirely misled by the history given us. All the data, including the mother's information, pointed to the left side as the one involved in the original lesion (a middle-ear abscess which had been opened and drained), when, as a matter of fact, the ankylosis was on the right side, and therefore the history could not have been correct. That case taught me to base the diagnosis on the points mentioned above rather than on the history.

TECHNIC OF OPERATION

In all of these cases of ankylosis of the jaw of the intra-articular type I have performed a typical and uniform arthroplasty, and the results which we have obtained have justified me in advocating this exact technic for these cases. The technic of this operation is not difficult, but it must be exact in its details in order to secure good results. I have employed the pedicled flap as the interposing material. It consists of fat and the aponeurosis of the temporal muscle, and sometimes includes a few muscle fibers.

In my earlier operations I fixed the tip of the flap to the connective tissue and internal portion of the capsule. Later I abandoned this procedure, and now I fix the flap at the basal angles only; by this method there is not that danger of injuring the internal maxillary artery, an accident which I encountered in one of my early cases. This flap is of the same shape and material as that used in my operations in 1902, but at that time I brought the flap under the zygoma down into the joint, while now I turn it over the zygoma into the joint.

At first I exposed the joint by a perpendicular incision just in front of the ear, extending from 1½ inches above the zygoma in the hair-line downward to the lower border of the zygoma. Later, I modified this incision, curving it slightly forward on the temple at its upper extremity. And then I adopted an L-shaped incision (the one I make now); the perpendicular portion comes down to the upper border of the zygoma and then extends forward along its upper margin for a half to three-quarters of an inch, making the longitudinal portion (Fig. 1). That is a very satisfactory incision, one which leaves a very slight scar, most of it being hidden in the hair. It gives better access to the joint than does the perpendicular incision, because in some of my cases of bony ankylosis, the ankylosis extended forward on the zygoma from the glenoid to the coronoid process. The perpendicular incision is made for the purpose of securing the fat and fascia of the temporal muscle.

I have divided the ankylosis by means of chisels, Gigli saw or with an olive-tipped dental burr driven by an electric motor. The latter is much more rapid, but,

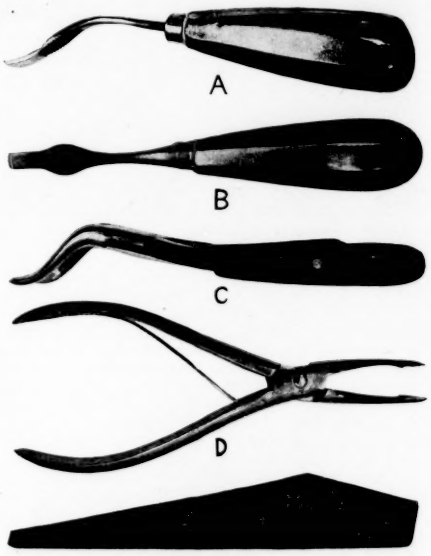

Fig. 2.—*A*, *B*, Dr. Murphy's periosteotome, side and back view (somewhat reduced); *C*, *D*, bone-cutting forceps or nippers, side and front view (somewhat reduced); *E*, the interdental block designed by Dr. Murphy to maintain the desired spread of the jaws. It is made of wood and since it is wedge-shaped, the degree of opening can easily be regulated by withdrawing or pushing in the block.

on the whole, is not so satisfactory, I believe, as the chisel. It is needless to point out that the greatest caution is required in the use of the chisel, or the burr for that matter, because of the close proximity of the brain, which is separated from the head of the mandible by a very thin transparent plate of bone only.

DETAILS OF THE OPERATION

After the incision has been made, as described above, the edges of the wound are retracted, the lower lip being displaced downward over the lower border of the zygoma, in order to give a good exposure of the joint. Then the tissues are separated with a special curved periosteotome (Fig. 2, *A* and *B*) all around

the anterior surface of the line of union and further separated with a similar instrument around the posterior surface. When the bone is laid bare, the two instruments are passed behind the neck of the bone, one from each side, so that when they are in place

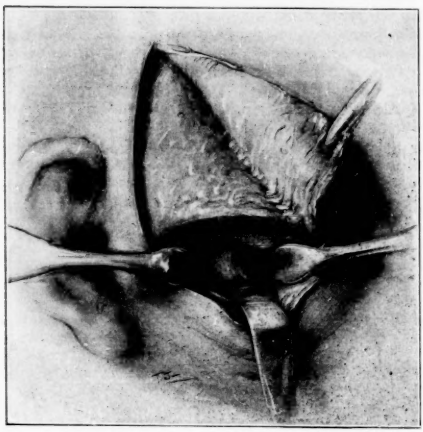

Fig. 3.—The curved periosteotomes encircling the condyle and neck of the mandible.

they completely encircle the neck of the mandible behind close to the head, holding the soft parts retracted during the excision of the bone, so that the articulation is fully exposed (Fig. 3). The insertion of these instruments and their retention in position during the excision of the bone form the key to the success and safety of the operation. Injury to the internal maxillary artery, which closely hugs the neck of the mandible, is thus avoided. These periosteotomes also act as retractors, keeping the field open for inspection during all of the work. The chisel or burr then divides the bone on the level of the tubercle, without endeavoring to remove the articular surface of the head of the bone, as there is danger of penetrating the base of the skull when an effort is made to excavate all of the head. If bony ankylosis is present, ⅓ inch of the neck is excised, so that one can put the tip of the finger between the divided fragments across the space over the inner margin of the neck at the base of the zygoma. This must be done carefully, and ample bone must be removed, so as to admit of the insertion of the interposing flap of fat and fascia. The periosteum should be left attached to the bone that is removed. The deeper fragments of the bone can be taken out with a small rongeur (Fig. 2, *C* and *D*). If one desires, as soon as the periosteotomes have been passed behind the neck of the bone, a small and full-curved aneurysm needle may be used to carry a silk thread around the neck of the mandible. This thread acts as the carrier for the Gigli saw (Fig. 4), which is used to divide the bone; this method is rapid and effective. The difficulty of inserting the saw is slight, but the acute angulation of the instrument, which necessarily occurs, occasionally causes it to break, giving one some inconvenience in replacing it. On the whole, I do not see that it is handled as easily as the chisel. As soon as the bone is completely divided, the mouth can be opened readily by the anesthetist (Fig. 5).

The interposing fat and fascia flap should now be prepared. The perpendicular incision is elongated up on the temple, say for a distance of 1½ inches. Then a U-shaped flap of fat and fascia is elevated from over the temporal muscle, about ¾ inch wide and 1½ inches long, leaving the base attached to the upper margin of the zygoma. This flap is freed from above downward, folded downward over the zygoma and packed into the bony gap previously described, from which a portion of the neck of the bone has been removed. The flap is packed into the cavity, and at its anterior and posterior basal angles it is securely tacked, with a few catgut sutures, to the fascia and periosteum, so as to retain it in position (Figs. 6 and 7). Then the skin wound is accurately closed with horsehair, dusted with bismuth subiodid and sealed with collodion gauze. No other dressing needs to be applied. The scar is scarcely perceptible and is almost entirely within the hair-line.

No special effort should be made at this time to spread the jaws, as it is important that the lower jaw should remain steadied on the well side in order that the wooden block (Fig. 2, *E*) inserted on diseased side may maintain the wide separation of the molar teeth, until the interposing flap has healed in. This block also prevents compression and necrosis of the flap.

Summarizing the whole technic, the steps of the operation are as follows: (1) the L-shaped incision; (2) division of the ankylosis and removal of a segment of the mandibular neck; (3) raising the flap of temporal fascia and fat; (4) interposing the flap and fixing it in place; (5) closure of the wound.

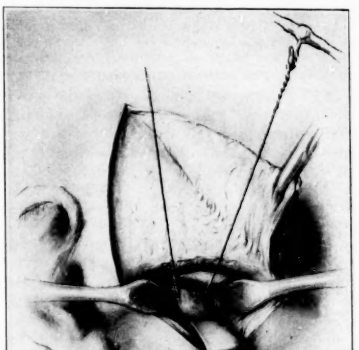

Fig. 4.—The Gigli saw used to divide the mandible.

RESULTS

The results which I have obtained in these cases have been satisfactory. The operation is one of the most gratifying in surgery, so far as results are concerned. There has been but one ultimate failure, and that I believe was due to one of three factors: (1) I

did not remove the periosteum with the bone; (2) there possibly was absorption of the interposing flap with ossification of the new-formed connective tissue, as occurs in detached trochanteric fascial flaps in arthroplasties on the knee and other joints, and (3) the parents did not carry out the instructions as to maintaining the wooden plug in position after the patient left the hospital.

In this case (Case 4), seen last nine months after the operation, there was limitation of motion, but not a bony ankylosis. The boy's parents did not attend to the blocking of the teeth since his discharge from the hospital two weeks after the operation, as they were instructed to do. He had good motion immediately after the operation. The immediate successes have been complete.

I have had nine cases of intra-articular ankylosis and two of extra-articular fibrous fixation. In the last-mentioned two cases, I employed the method

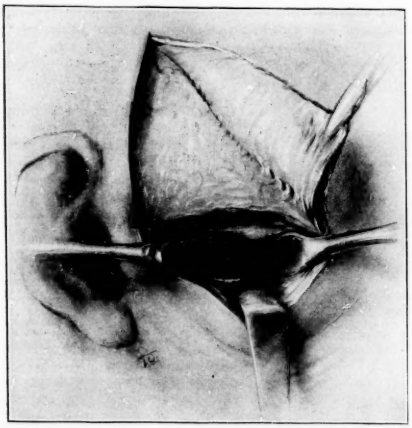

Fig. 5.—The gap left after the exsection, with the curved periosteotomes still *in situ*.

which I believe is original with me. It consisted in the utilization of mucous membrane pedicled flaps taken from the hard and soft palate as an interposing medium between the divided cicatricial connective-tissue masses for the purposes of preventing a recurrence of the fixation.

REPORTS OF CASES

CASE 1.—*Ankylosis of Right Temporomaxillary Articulation.*—F. D., boy, aged 15, was admitted to Mercy Hospital, Sept. 3, 1912, on account of absolute fixation and deformity of the lower jaw. The history given by his family was as follows:

When he was 6 months old a swelling developed rather suddenly in front of the tragus of the "left" ear. A few days afterward pus discharged from the ear through the external canal for four or five days and then the swelling disappeared. There was no swelling over the mastoid then nor has there been since. In fact, there has been no further trouble in that ear. His parents stated that he had no throat or skin trouble and that there was no noticeable deformity of the jaw then. Not until twelve months after the ear trouble did they note that his jaw was fixed. Since then he has been unable to open his mouth.

Examination.—The lower jaw is deformed. The normal angle is absent. The chin is narrow, pointed, recedes and is situated to the right of the median line. The molar teeth articulate normally, but the upper front teeth project beyond the lower about half an inch. The skin for a thumb's breadth to the left of the symphysis menti is contracted. This con-

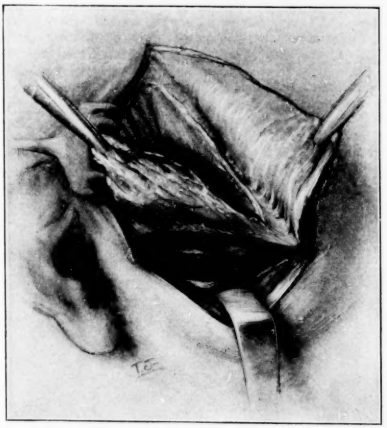

Fig. 6.—The temporal fascia and fat flap freed and prepared for insertion.

traction extends into the tissues of the neck. The lower jaw is pressed firmly against the upper, so that the patient has no motion in any direction. There are no enlarged lymph-nodes perceptible in the neck. There is no discharge from either

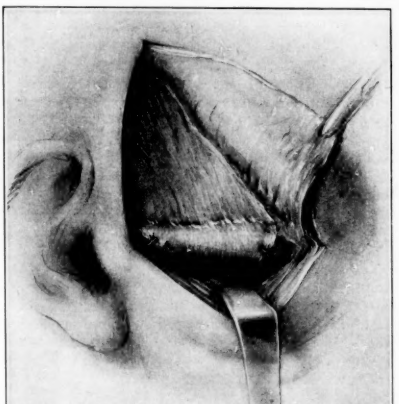

Fig. 7.—The temporal fascia and fat flap secured in its interposing position by sutures.

ear now and no signs of a recent or old mastoid trouble. There is also a marked retraction of the jaw, with a considerable flattening of the left side of the face (Figs. 8 and 9).

Operation.—As all the data which could be obtained in this case pointed to the left side as the seat of the trouble, it

was concluded to operate on that side. Sept. 7, 1912, a 2-inch perpendicular incision was made, extending along the front of the ear on the jaw, commencing an inch and a half above the zygoma and extending down to its lower margin. Most of the incision was in the hair-line, so that very little of the scar would be visible later. The tissues were divided close to the ear, retracted forward on the cheek and down below the zygoma out of the field of operation. The joint was exposed at once. There was no intra-articular ankylosis, but a capsular contraction was present, the result of the long fixation of the joint. The attachment of the temporal muscle to the mandible was freed, but the jaw remained fixed. A second incision was made just beneath the angle of the jaw parallel with the ramus, and through this the masseter was freed from its attachment, as well as the internal pterygoid. Still there was not a particle more motion in the jaw than before.

The roentgenograms in this case were very indefinite, as they usually are in these cases, and no assistance was received from them.

This being one of the early cases of ankylosis of the jaw, I had not yet learned to recognize from the facial deformity which side was involved. Later, I learned that the full side of the face was the one to attack and not the flattened side. The failure to get the jaw to drop after the division of these three muscles led me to the conclusion that a mistake might have been made by the parents and friends of the boy in giving us the history, and that it was the right and not the left side which had been involved primarily when he had his ear trouble. Therefore I immediately exposed the right mandibular articulation.

Fig. 8 (Case 1).—Marked flattening of left side of face and fulness of right side. Considerable deviation of chin to the right of the median line.

Fig. 9 (Case 1).—Great retraction of the skin; in fact, there is hardly any chin. This is characteristic in these cases, when the condition occurs early in life.

Fig. 10 (Case 1).—Six months after operation; patient's mouth wide open.

An incision similar to that which was made on the left side was made in front of the right ear. The zygomatic attachments were divided at the ear and retracted onto the face out of the field, and when the joint was exposed, I found a bony ankylosis of the articulation, extending forward to the tubercle on the zygoma. It was one solid bony mass. This showed conclusively that the error had been made by the boy's parents in stating that it was the left side that had been involved in the middle-ear infection. My findings showed that it must have been the right side. This ankylosis was divided about a line below the anatomic articulation with a carpenter's narrow straight chisel, a portion of the condyle of the mandible was removed and the jaw immediately dropped down. There was free motion. A flap was then raised from the temporal muscle, consisting of fascia and fat. The tip of the flap was turned down into the joint and interposed between the temporal bone and the mandibular neck, so as to prevent the recurrence of the ankylosis. The flap was tacked in place at its tip to the internal capsule on the neck of the mandible with a few chromicized catgut sutures. The zygomatic attachments were replaced in their normal position and fixed. The deeper portion of the wound was closed with catgut and the skin incision with horsehair. The wound on the left side of the face was also closed with horsehair. Collodion gauze dressings were applied.

Result.—On the morning of the next day the patient was able to open his mouth voluntarily far enough to introduce two fingers. Further progress was uneventful. He had motion in his jaw, free and voluntary, and no pain. The stitches were removed on the sixteenth day. There was primary wound healing. The range of motion was increased rapidly by placing a wooden wedge between the teeth. Word was received from the boy six months later that he could hold an apple in his mouth (Fig. 10).

This case is interesting because of the fact that ossification occurs in certain white fibrous structures in the embryo, and these structures have a tendency to ossify in postnatal life, if subjected to infection or irritation.

The result in this case was encouraging in every way, and in none of the subsequent cases did I fail to make a correct diagnosis as to which side was involved.

CASE 2.—*Ankylosis of Right Temporomandibular Articulation.*—A. D. C., man, aged 24, was admitted to Mercy Hospital, April 9, 1913, on account of ankylosis in the lower jaw. Eighteen years ago he was kicked by a horse on the left side of the jaw just posterior to the mental angle, and sustained a compound fracture at this point. The wound suppurated and discharged pus for about two months, when a sequestrum of bone or a tooth—he does not know which—was extruded from the wound, which then healed. Immediately after the accident the patient also had a discharge from the right ear which persisted for some time, he does not know just how long. He never had any pain in the ear before the discharge appeared or afterward. The fixation of his jaw was consequent to this ear discharge. In order that he might feed himself the upper right canine and bicuspid were removed (Fig. 11). The personal and family histories were otherwise negative.

Examination.—The lower jaw was fixed and immovable. The right side of the face was full and round (Fig. 12). The left side was slightly flattened from the angle of the jaw to the chin. The latter deviated to the right of the median line; the patient also had a considerable retraction of the chin. The roentgenogram (Fig. 13) showed a complete obliteration of the right temporomandibular articulation. There was a bony ankylosis extending forward on the tubercle of the zygoma.

Operation.—April 17, 1913, the articulation was exposed by a 2-inch curvilinear incision beginning at the lower level of the tubercle of the zygoma half an inch in front of and on a line with the external auditory canal and extending upward into the hair in a curved direction. By retracting the wound edges and elevating the periosteum with a periosteotome, the site of the articulation was exposed. All anatomic landmarks were lost. An elevation that felt like the head of the mandible was visible and there was some fibrous tissue resembling the capsule of the articulation. There was no motion in the joint. The periosteum was very carefully removed from the head of the bone, and the ankylosis was divided with a narrow straight chisel. It extended forward to the tubercle, binding the mandible firmly to the zygoma. The head of the mandible was then removed with a bone-cutting forceps, leaving a space half an inch in width in which was placed the flap of fat and fascia deflected from the temporal muscle. The temporal flap measured 2 inches in length and an inch in width. It was raised from the temporal muscle and dropped down over the zygoma into the glenoid fossa, so as to cover the raw bony surfaces completely. The tip of the flap was fastened to the capsule on the internal surface of the mandible by

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means of a few tacking catgut sutures. The basal angles were likewise fixed. The skin wound was closed in the usual manner.

The jaw moved quite freely after the operation. It was found that the opposite articulation was quite stiff, owing to a fibrous fixation, but nothing was done at this time to overcome it, as I preferred to keep it set until the wound healed and the vitality of the flap was assured. A week later the patient was again anesthetized and this fibrous fixation was overcome by forcibly prying open the mouth, care being taken not to injure the teeth or to fracture any of the bones. Success attended this effort.

Result.—The day following the operation, the patient had free voluntary motion in the jaw, which increased rapidly in range. The stitches were removed on the tenth day. There was primary wound healing. The mouth could be opened for 1 inch. When the patient left the hospital on the twenty-second day he could open his mouth for a distance of an inch and a half. A report received nine months after the operation states that the result is a most satisfactory one (Fig. 14).

There are several interesting points in connection with this case which bear emphasis. This man was kicked by a horse on the left side of his face and had a discharge from the right ear. He had no scar on the right side of the face. He evidently had a metastatic infection in the right temporomandibular articulation, and the abscess opened into the ear. He did not have an extension of the infection throughout the entire length of the chin, such as one encounters in mouth infections, typhoid infections or phosphorus necrosis, in which the whole lower jaw from symphysis up to the mandibular articulation may be involved, so that the head of the bone becomes necrotic and is exfoliated. In those cases the whole jaw may be removed as a sequestrum. There was no evidence that this patient had any such infection. We do know, however, that he had an injury of the left side of the jaw and that he had an infection in the right temporomandibular articulation. That is the condition which produced his ankylosis.

Fig. 11 (Case 2).—The lips are retracted to show the fixation of the jaw and the gap in the denture through which the patient fed himself for eighteen years.

Fig. 12 (Case 2).—Lateral view, showing the retraction of the chin. It is evident that that side of the face, the right, is not flattened. It was the right articulation that was ankylosed.

Fig. 14 (Case 2). — Eleven months after operation; patient able to open the mouth practically to the normal degree.

CASE 3.—*Fibrous Ankylosis of Left Temporomandibular Articulation.*—W. B., boy, aged 6, was admitted to Mercy Hospital, May 22, 1913, on account of inability to open his mouth more than half an inch. The boy was an eight months' child, born during a dry labor lasting twenty-four hours. It was early noticed that the child had difficulty in nursing but the reason for this was not discovered. When the boy was 18 months old, the mother noticed that the right side of the face was deformed, that is, it was flattened. The left side appeared to be full and round. About this time the boy had pneumonia and when the attending physician attempted to introduce a spoon into the mouth for the purpose of examining the throat, he was unable to do so. When the boy was 3 years of age, his mouth was pried open and a cork was placed between the teeth. As soon as the cork was removed, however, the jaw immediately closed down to half an inch. The patient has never had any other illness than the pneumonia; no nose, throat or ear trouble, and no injury. He has been fed through a gap made in the upper and lower dentures by the extraction of a tooth in each.

Examination.—The physical deformity was striking (Fig. 15). The left side of the face was full and round.

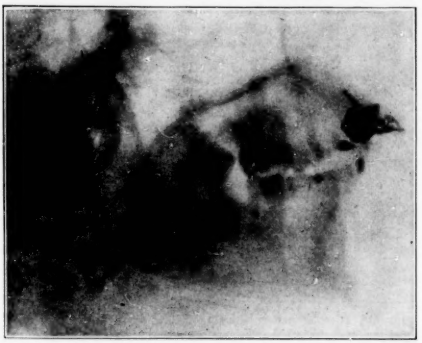

Fig. 13 (Case 2).—Roentgenogram of right side of head made before operation, showing the complete obliteration of the temporomandibular articulation.

The right side was flattened over the body of the inferior maxilla. The mouth was slightly twisted; the chin was displaced to the left of the median line and receded. The patient could open his mouth for a distance of only half an inch (Fig. 16). There was a slight anteroposterior sliding motion in the right temporomaxillary articulation. There was no lateral motion whatever. The roentgenograms, one showing the mouth closed and the other open, were somewhat indistinct. The articulation was not clearly outlined, but the coronoid process seemed to change position when the mouth was open, so that I concluded that it was probably only a fibrous ankylosis of the left temporomandibular articulation, an opinion confirmed at operation.

Operation.—May 23, 1913, the articulation was exposed by means of the perpendicular incision made immediately in front of the ear, extending from a point half an inch below the zygoma, upward into the hair-line for a distance of 2 inches. By retracting the wound edges the articulation was easily exposed. On moving the jaw it was found that the coronoid process was free, but that there was a fibrous ankylosis between the head of the mandible and the fossa. By means of a scalpel and a narrow quarter-inch straight carpenter's chisel the ankylosis was divided and about ⅛ inch of the head of the bone was removed, so as to make room for the interposing flap, which was reflected from the temporal muscle aponeurosis in the usual manner. The flap was 1½ inches in length and ¾ inch wide. It was dropped down over the zygoma into the joint, so as to cover the raw bony surface of the condyle. It was fixed in place by means of two tacking catgut sutures, one at each basal angle of the flap (Fig. 7). The skin wound was then closed in the usual manner.

Result.—On the morning of the following day the boy had free motion in the jaw in spite of the fact that there was a considerable edema of the left side of the face, especially of the field of operation. The stitches were removed on the ninth day. Primary wound healing occurred. The edema rapidly subsided and motion increased to such an extent that when the patient left the hospital, about three weeks after the operation, he could open his mouth easily a distance of and inch and a quarter (Fig. 17). A report received April 4, 1914, reads as follows: "The result I am sure will please you, as it is a perfectly splendid one" (Fig. 18).

Fig. 15 (Case 3).—The fulness of the left side of the face, the flattening to the right of the chin and the displacement of the latter to the left are very evident.

Fig. 16 (Case 3).—The extent to which the mouth could be opened and the gap in the denture through which the patient was fed.

This is the only case in this series in which there was an extensive edema of the face following the operation. The swelling was enormous and was undoubtedly caused by the manipulation of the tissues, and while it temporarily prevented active efforts on the part of the patient to move his jaw, it did not interfere with the final result, which was splendid. This, too, was the only case of intra-articular fibrous ankylosis. It did not involve the coronoid process which was free, as shown in roentgenograms of the mouth opened and closed. It will be noted that the operation which was performed in this case is similar in principle to that performed in the cases of bony ankylosis.

CASE 4.—*Ankylosis of Left Temporomandibular Articulation.*—D. C., boy, aged 13, was admitted to Mercy Hospital, June 6, 1913, because of complete fixation of the lower jaw. In September, 1909, the patient fell from a third-story window a distance of 45 feet, landing on a brick pavement. He alighted on his feet, but his knees were flexed forcibly and the body bent forward, so that the chin impacted with the knees. The result was two lacerations of the skin over the chin and several broken teeth. He was picked up unconscious, bleeding profusely from his nose, mouth and ears. He was taken to the hospital, and remained unconscious for three hours. When he left the hospital on the sixth day he was unable to open his mouth. His jaw was fixed and has remained so ever since.

Examination.—The right side of the face is slightly flattened. The left side is full and round. He is unable to separate his teeth at all, but because of the retraction of the chin, which is considerable, he is able to feed himself. There is a space of about a half inch on a horizontal line between the upper and lower teeth. Diagnosis: Bony ankylosis of the left temporomandibular articulation (Figs. 19 and 20).

Operation.—June 7, 1913, an incision was made along the upper border of the zygoma, extending from the ear forward on the cheek for a distance of about ¾ inch. The skin flap was displaced downward, and the articulation was exposed. A bony ankylosis extending from the condyle to the coronoid process was found. By means of the straight ¼-inch chisel, the ankylosis was freed and ⅓ inch of the condyle and of the coronoid process was removed. The jaw then dropped down freely. A second perpendicular incision was then made extending from well up in the hairy portion of the scalp downward in front of the ear to the starting-point of the first incision. This gave ready access to the temporal muscle and fascia. The usual flap was raised, dropped down over the zygoma and tucked into the joint, so as to cover all raw bony surfaces. Fixation was maintained by means of two tacking sutures of catgut placed in the angles of the flap. The skin wounds were closed in the usual manner.

Result.—The day following the operation the boy opened his mouth voluntarily for the first time in nearly four years. He rapidly increased the range of motion by means of the wooden wedge which I use in all of these cases and by chewing gum. The stitches were removed on the eleventh day. Primary wound healing occurred. When the patient left the hospital, two weeks after the operation, he opened his mouth freely about an inch and a quarter (Figs. 21 and 22). When the boy was seen again, first about six months afterward and again nine months afterward, he had almost complete limitation of motion of the lower jaw, the result of neglect to carry out the prescribed after-treatment by means of the wooden interdental block. There was no return of the bony ankylosis, however.

This was the only case in this series, except Case 2, which occurred in an adult, in which the ankylosis was comparatively recent and did not come on early in life. It was the result of a distinct and definite trauma and not of an infection. When the articulation was exposed, I could find no trace or evidence of the fracture into the joint, but the history would lead to the belief that there must have been a traumatic fibrous arthritis with subsequent ossification. This is the usual course that follows blows on the chin. The same type of ankylosis occasionally occurs in the elbow-joint when youngsters fall and strike severely on the olecranon.

Fig. 17 (Case 3).—Thirteenth day after the operation; extent to which the patient could open his mouth.

Fig. 18 (Case 3).—Degree to which the patient could open his mouth voluntarily eleven months after operation.

CASE 5.—*Bony Ankylosis of Left Temporomandibular Articulation.*—F. C., boy, aged 7, was admitted to Mercy Hospital, June 13, 1913, because of complete fixation of the lower jaw. He was an orphan and little of his history could

be obtained. His guardians stated that he had never been able to open his mouth since birth. They did not know anything about the labor. When he was a baby (age not given) he suffered for several months with a discharging ear (which one not known), but he had not been able to open his mouth before that time.

Examination.—It was impossible to separate the teeth. Several teeth had been extracted in the front of the boy's mouth to allow of his being fed (Fig. 23). On an attempt to pry the mouth open, a slight forward sliding motion was detected toward the left side. The left side of the face was full and round. The right side was flattened. The chin was slightly retracted, but the coaptation of the teeth was normal (Fig. 24). Diagnosis: Bony ankylosis of left temporomandibular articulation.

Fig. 19 (Case 4).—There was not much fulness of the left side of the face or much flattening of the right in this case, the ankylosis having existed for only four years, commencing at the age of 9. There is no deviation of the chin, although there is considerable retraction.

Fig. 20 (Case 4).—Extent to which the patient could open his mouth before operation.

Operation.—June 14, 1913, the articulation was exposed as in the previous case by means of the horizontal incision along the upper border of the zygoma and the perpendicular incision to expose the temporal fascia. It was found that the ankylosis was of the bony type and that it extended forward to the zygomatic tubercle. It was freed by means of a small olive-shaped dental burr, operated by an electric motor, and with a small bone-cutting forceps (Fig. 2, *C* and *D*) ⅓ inch of the condyle was removed. The jaw immediately dropped down. The flap of temporal fascia was then raised from the muscle and inserted in the usual manner. The flap was fixed by means of two tacking catgut sutures placed at its basal angles. The wound was closed in the usual manner.

Result.—On the following morning the boy could open his mouth for about half an inch. Motion was encouraged by means of the wooden wedge, which was inserted between the molar teeth. The stitches were removed on the tenth day. Primary wound healing occurred. When the patient left the hospital on the sixteenth day he could open his mouth easily an inch and a quarter (Fig. 25).

On May 16, this patient returned to the hospital with a complete fixation of the jaw. Examination indicated that there was a bony ankylosis. On the 18th an incision was made similar to the original one and it was found that a complete bony ankylosis had recurred and had extended forward beyond the maxillary tubercle toward the coronoid process. All of the bone was excised, leaving a cavity of ½ inch. A small connective tissue and fascia and fat flap was prepared with the base attached to the cheek tissues below the mandible. This was inserted and fixed by the angular tacking stitches as in previous operations, and the wound was closed in the usual manner.

All of the previously interposed flap had entirely disappeared, probably due to the pressure on account of the failure to maintain the interdental block in the usual way. The day following the operation, the patient had no trouble in opening his mouth voluntarily for ¾ inch.

CASE 6.—*Bony Ankylosis of Left Temporomandibular Articulation.*—E. F., girl, aged 8, was admitted to Mercy Hospital, July 10, 1913, because of inability to open her mouth for more than ¼ inch. When she was 2½ years old she had a cold, but was not ill enough to be put to bed. After two or three days she had severe earache on the left side, and a swelling appeared in front of and behind the ear. A week later she had an abscess in front of the ear at the maxillary articulation. The swelling around the ear became larger, very painful and tender, especially in front of the ear. The patient could open her mouth at this time and had no pain when moving the jaw. One week later the left ear began to discharge pus very freely and she also had a very bad diarrhea. She was very ill and had a high (?) temperature. The pain was so severe that in her delirium she pulled out her hair on that side of the head. The swelling around the ear increased in size and extent until the whole side of the face was involved and discolored. Five weeks after the abscesses formed, she was operated on (April 21, 1908). The abscess in front of the ear and the one into the maxillary articulation were opened and drained and the mastoid operation was performed. The wound into the maxillary articulation drained for two weeks; that in front of the ear continued to discharge pus for three months after the operation. The mastoid wound discharged pus for six months, during which time four operations were performed, more bone being removed each time. Following the last operation in October, 1908, the wound closed rapidly.

April 28, 1908, one week after the abscesses were opened, the mother noticed that the baby could not open her mouth more than she can at present. The fixation has remained in spite of repeated attempts at stretching.

Examination.—There was not much deformity in this case (Fig. 26). There was a little fulness on the left side of the face and a slight flattening on the right. The chin was almost in the median line and only slightly retracted. The mouth could not be opened more than ⅛ inch (Fig. 27). The roentgenogram (Fig. 28) of the left side of the face showed entire obliteration of the temporomandibular articulation. Comparing this with the roentgenogram of the right side (Fig. 29), the difference between the two was quickly noted. Diagnosis: Bony ankylosis of the left temporomandibular articulation.

Fig. 21 (Case 4).—About two weeks after operation; extent to which the patient could open his mouth voluntarily.

Fig. 22 (Case 4).—Skin wound two weeks after operation. This is a good illustration of the type of incision usually employed in these cases. The retraction of the chin shows very well in this picture.

Operation.—July 12, 1913, the left temporomandibular articulation and the temporal muscle were exposed by means of the L-shaped incision used in the two previous cases, that is, a horizontal incision extending along the upper border of the zygoma and the perpendicular incision in front of the ear, extending upward into the hair. When the articulation was exposed, the diagnosis was confirmed. The ankylosis was freed with the olive-tipped dental burr, as in the

previous case. One-third inch of the upper end of the condyle was removed with bone-cutting forceps. As soon as the ankylosis was freed, the jaw dropped down. A flap of temporal fascia and muscle, measuring ⅝ inch in width and an inch and a half in length, was elevated from its bed, and dropped down over the zygoma and into the articulation, so as to cover all raw bony surfaces. Two catgut sutures placed at the basal angles of the flap secured its fixation. The wound was closed in the usual manner.

Result.—The following morning the patient had motion in the jaw, being able to separate the teeth for about half an inch. She was given the wooden wedge to use and when the stitches were removed on the tenth day, she was able to open her mouth for an inch. The wound had healed by primary union, but there was a slight collection of fluid underneath the skin above the zygoma. Three days later when the second dressing was made this fluid was removed by aspiration. It was a dark-colored, clear, odorless fluid, the result of oozing. The fluid did not reform and the patient left the hospital fifteen days after the operation. She was able to open her mouth fully an inch. She returned for examination on the twenty-second day. She could open her mouth easily for a distance of more than an inch and a quarter (Fig. 30). A photograph received six months after the operation shows that she has perfect use of her jaws (Fig. 31).

Fig. 23 (Case 5).—Absolute fixation of the jaw and the gap in the denture through which the patient was fed.

Fig. 24 (Case 5).—Bony ankylosis of the left temporo-mandibular articulation, with fulness of the left side of the face and some flattening of the right side over the body of the jaw. The chin is slightly deviated to the left.

Fig. 25 (Case 5).—Photograph made about two weeks after operation, showing how well the patient could open his mouth.

This was one of the three cases in this series in which a hematoma developed after the operation. The hemorrhage during these operations is very slight, and there is little necessity for ligating bleeding vessels; but I am always very careful to ligate every bleeding point, because my experience in my arthroplasty work on the larger joints has taught me that that is the safest procedure, if one would avoid the occurrence of hematomas, which materially hazard the subsequent course of the case.

CASE 7.—*Ankylosis of Left Temporomandibular Articulation.*—L. J., man, aged 31, was admitted to Mercy Hospital, Oct. 31, 1913, with ankylosis of both hips, all of the vertebral joints, including the occiput to the atlas, the left temporomandibular articulation and a partial ankylosis of both shoulders.

In July, 1895, the patient fell from a horse, striking the ground forcibly with the lower end of his spine. He was able to get up immediately and walk, but he had severe pain in the spine. This persisted for several days and then disappeared entirely. In the spring of 1896, he had severe pains in the right hip, the pain coming on slowly and increasing in severity, without any other symptoms referable to the hip. He asserts that he was not subject to tonsillitis or other infections in his nose, mouth, accessory sinuses or elsewhere, either at this time or previously. He consulted a physician, who examined him and discovered a marked scoliosis in the lumbar region. He walked without any support, however, but limped slightly. Some time during 1897, a plaster-of-Paris body-cast was applied to correct the scoliosis. He wore this cast for four years, when a leather jacket was substituted, and this too was worn for four years. During all of this time the right hip became more stiff but less painful. In 1903 he was forced to use a cane, as the right hip was very stiff. In the latter part of 1903, he began to have attacks of pain in the back of the neck, increasing on motion of the head. Finally the neck became stiff, so that he was unable to turn the head in any direction or bend his neck. In March, 1906, the left hip became painful and he was forced to resort to crutches. In June the left temporomandibular joint became affected and gradually power of motion in this joint was lost. The pain disappeared with the loss of motion. In September, 1906, the patient discarded his crutches permanently and not until then did he notice that he could not raise his arms to the full extent. He denied all previous illness, except typhoid at the age of 7; he said that there had been no lues and no neisserian infection.

Examination.—The spine was ankylosed from top to bottom. Both hips were stiff. Motion in the shoulders was restricted in every direction. The lower jaw was absolutely fixed, so that the patient could not open his mouth at all. His head was acutely flexed forward, the chin almost resting on his chest. The conformation of his face indicated clearly that the left temporomandibular articulation was ankylosed. He had had several of his lower teeth extracted, so that he could take food. The right side of the face was flat; the left side was full and round and the lower jaw was slightly retracted.

Operation.—Nov. 10, 1913, the usual arthroplasty for this condition was done, except that instead of an attempt being made to separate the ankylosis with the chisel, the neck of the bone was divided, because there was so much new bone formation in the joint that it was feared that if an attempt were made to seperate the ankylosis the underlying structures might be injured. Therefore, a new joint was made by dividing the neck of the condyle, allowing all of the head to remain in the fossa. The interposing flap was taken from the fat and fascia over the temporal muscle, and because of the sparsity of fat some of the muscle-fibers were removed with the flap. The flap was dropped down over the zygoma into the new joint and tacked with catgut sutures at its basal angles in the usual manner. There was much bleeding in this case and great care was taken to ligate every bleeding point. The wound was closed as usual.

Result.—The first dressing was made, November 22. The wound had healed by primary union and the stitches were removed. There was a considerable hematoma, however, under the skin over the temporal region. Two ounces of a clear, port-wine colored, odorless fluid were removed by aspiration. Microscopic and bacteriologic examination of this fluid was negative. It was aseptic. Two days later another aspiration was made, only half an ounce of fluid being removed. This fluid was likewise negative bacteriologically. The subsequent course of the case was uneventful. The range of motion increased rapidly from half an inch the day following the operation to about ¾ inch on leaving the hospital. The range of motion was limited by the impingement of the chin against the chest. The patient could masticate freely and regarded it as a great pleasure.

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CASE 8.—*Bony Ankylosis of Right Temporomandibular Articulation.*—M. Van W., girl, aged 11, was admitted to Mercy Hospital, Nov. 6, 1913, because of inability to open her mouth. When 2½ years of age she had a very severe illness lasting from five to six weeks. Her father stated that she had had a sore throat and expectorated purulent material. When she recovered, her jaws were stiff, but she could still open her mouth a little. Six months later she had a boil on the back of her left hand, next, one near the left elbow, then one in the left axilla, one on the left side of the neck and one on the right leg. All of these boils were lanced as they appeared and all discharged pus for a while and then healed. The limitation of motion in the jaw increased in degree until four years ago, when the jaw became absolutely stiff, the teeth being clenched together.

Fig. 26 (Case 6).—There was very little deformity in this case, just a slight deviation of the chin to the left.

Fig. 27 (Case 6).—Extent to which the patient could open her mouth before operation.

The patient is said never to have had any trauma of the face or any other illness except the one mentioned.

Examination.—There is absolute ankylosis of the right temporomandibular articulation, bony in type. The right side of the face was full and round, the left side was flattened. The chin was retracted and drawn slightly beyond the midline to the right. There was no motion whatever in the jaw. Diagnosis: Bony ankylosis of the right temporomandibular articulation (Fig. 32).

Operation.—Nov. 15, 1913, the usual operation was performed, the joint being exposed by means of the L-shaped incision. The ankylosis involved the head of the condyle.

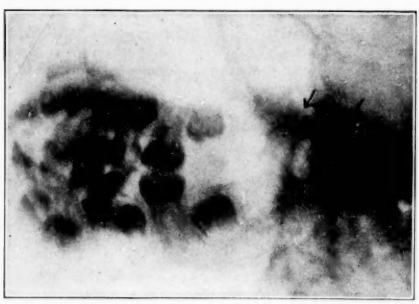

Fig. 28 (Case 6).—Roentgenogram of left side of head made before operation, showing complete obliteration of the temporomandibular articulation. Compare with Figure 29.

The bones were divided with a narrow straight chisel in such a manner as to retain the normal conformation of the joint as much as possible. The gap for the interposing flap was about ⅓ inch in width. As soon as the ankylosis was divided, the mouth could be opened easily by the anesthetist, although the stiffness of the muscles and ligaments on the other side prevented the lower jaw from falling down. The pedicled flap of fat and fascia was raised from over the temporal muscle. It was an inch and a half long and an inch wide. It was dropped down over the zygoma into the joint and was secured by tacking catgut sutures at its basal angles. The wound was closed in the usual manner.

Result.—The following morning, this patient, like all the others, could open her mouth easily more than half an inch. The range of motion increased rapidly and when she left the hospital three weeks after the operation the spread of the jaws measured an inch and a quarter. The wound had healed by primary union with no complications. A photograph received from this patient four months after the operation shows a superlatively good result (Fig. 33).

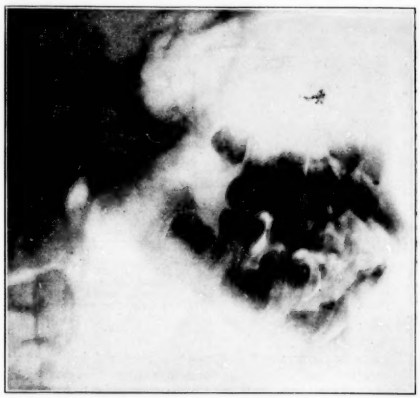

Fig. 29 (Case 6).—Roentgenogram of right side of head made before operation, showing a normal temporomandibular articulation.

CASE 9.—*Bony Ankylosis of Right Temporomandibular Articulation.*—J. S., man, aged 25, was admitted to Mercy Hospital, Nov. 11, 1913, because of ankylosis of the right temporomandibular joint and the right hip, with a discharging sinus over the right clavicle and another in the right groin. In 1905, after he had been swimming, he had a chill and immediately afterward he noticed a stiffness in the right knee but no pain, redness or swelling. He does not know whether or not he was subject to an infection in any part of his body at this time, nor had he sustained a trauma. He was able to use his knee without pain or discomfort. The following morning he was awakened by severe pain in the left knee and on examination he saw that it was red and swollen. A physician was consulted immediately, who made a diagnosis of abscess in the knee and prescribed hot fomentations. The following day the pain in the knee was very severe and the joint was greatly swollen. He had a high (?) fever and became delirious. He was removed to

Fig. 30 (Case 6).—Extent to which the patient was able to open her mouth voluntarily, twelve days after the operation.

Fig. 31 (Case 6).—Photograph made six months after operation, showing a splendid spread of the jaws.

a hospital, the leg was incised in several places and gauze wick drains were inserted. After the operation he was informed that the bone had been drilled into and found necrotic. He remained in the hospital about ten weeks with considerable elevation of temperature, and was delirious most of the time. The left hand and the left side of the neck had also been lanced and several incisions were made on the back along the spinal column. Pus was discharged from every opening. A large bed-sore developed over the left hip. When the patient left the hospital (he does not remember when), all the wounds had healed, except two in the left leg which were still discharging pus.

Fig. 32 (Case 8).—The jaw was firmly fixed, and there was the usual gap in the denture for feeding purposes.

Fig. 33 (Case 8).—Front view four months after operation, showing the mouth open to nearly the normal degree and in a perfectly plumb line.

Two years later the left leg was amputated in the upper third of the thigh. About one month later he first noticed a stiffness in his jaw, but there was no pain in the temporomandibular joints. Four weeks later an abscess appeared over the left clavicle. It opened spontaneously and discharged pus freely and, he thinks, some necrotic bone. Abscesses also formed over the right clavicle and in the right axilla, and they too opened spontaneously and discharged pus. Finally all wounds healed.

In 1910 he began to have severe pain and swelling in the right arm. An abscess formed, was opened and necrotic bone removed and after a short period of discharge, the wound healed. The right elbow was the next joint to become involved, and when the inflammation in this joint had subsided, he was unable to move it. It was ankylosed. The abscesses in the right groin and over the right clavicle, which are still discharging, developed one year ago.

Fig. 34 (Case 9).—Ankylosis of right temporomandibular joint. The jaw is firmly fixed.

Fig. 35 (Case 9).—Four months after the operation the patient could easily open the mouth 1⅜ inches.

Examination.—The right elbow was firmly ankylosed and flexed to nearly right angles with the arm. The jaw was fixed. The teeth could not be separated even for a fraction of an inch (Fig. 34). The left side of the face was flat. The chin was retracted and drawn slightly to the right of the midline. Diagnosis: Bony ankylosis of the right temporomandibular articulation.

Operation.—What the patient most desired was to open his mouth so that he could feed himself. Therefore only the temporomandibular joint was operated on. Nov. 12, 1913, the usual arthroplasty was performed. The joint was exposed through an L-shaped incision. The ankylosis extended across to the tubercle and the usual interposing flap was placed. The wound was closed in the accustomed manner.

Result.—The morning after the operation the patient opened his mouth voluntarily about half an inch. The range of motion increased rapidly until at the time of the first dressing, made on the thirteenth day, he could open his mouth nearly an inch. The wound had healed by primary union. About 1 ounce of a clear bloody odorless fluid was removed by aspiration. Bacteriologic examination proved it to be negative. The stitches were removed on the thirteenth day. When the patient left the hospital, three weeks after operation, he could open his mouth about an inch and a quarter. The patient was seen again April 3, 1914. He could easily open his mouth 1⅜ inches without the slightest pain or discomfort. Lateral motion of the jaw was perfect and the scar was scarcely discernible (Fig. 35).

The facial nerve, which leaves the skull through the stylomastoid foramen, passing forward across the lower portion of the parotid, is distributed to all of the muscles of expression of the face, and there is danger of injuring that nerve and getting a permanent paralysis of these muscles, particularly the fibers that pass to the temporal and supra-orbital zones. These can all be avoided by the L-shaped incision above the zygomatic level.

There is another element of danger connected with this work, namely, one cannot divide the ankylosis in the line of the original articulation, because if he does he is almost certain to penetrate the base of the skull. Therefore, I always remove the condyle of the inferior maxilla and do not clean out the glenoid fossa to make a cavity.

The location of the internal maxillary artery must always be borne in mind in the removal of bone, as it hugs the neck on the inner side closely and can easily be injured. If it is injured, it should be ligated at the bifurcation of the external carotid. The importance of making the incision above the level of the zygoma can be recognized at once, as it puts the scar-line beneath the hair.

The after-treatment is very important. Mastication should be started at the end of two weeks, preferably not earlier, because otherwise too much fibrous tissue will be produced between the ends of the divided bones. The wooden block (Fig. 2 *E*) should be placed between the molars on the operated side and kept there day and night for two weeks, to prevent possible compression necrosis of the interposing flap. The jaw should not be spread at the time of the operation, as that lessens the effectiveness of the interdental block in protecting the flap.

In all my arthroplasty work there is no operation that gives the same satisfaction to the patients as that for ankylosis of the temporomandibular articulation.

2526 Calumet Avenue.

Accidents on Steam Railways.—According to Accident Bulletin No. 49 of the Interstate Commerce Commission the number of persons killed in train accidents during July, August and September, 1913, was 211; the number of persons injured was 4,011. These figures are compiled from the reports made in 1913 by the railways to the Interstate Commerce Commission. The total number of casualties of all classes amounted to 3,173 persons killed and 36,642 injured. This includes 2,830 persons killed and 19,763 persons injured as the results of accidents sustained by employees while at work, by passengers getting on and off cars, by persons at railway crossings, persons doing business at stations as well as by trespassers and others.

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A CASE OF PSEUDOMYXOMATOUS CYST OF THE APPENDIX

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AND
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Reference to the literature concerning retention-cysts of the vermiform appendix leads one to believe that either the condition is rather infrequent or many cases are not reported. In 1905, Corning[1] stated that only about sixty cases of cysts of this kind, discovered at operation or at necropsy, had been reported, and that in 7,108 necropsies by various observers there were found only twenty-seven cases (less than 0.4 per cent.). At the same time Corning reported four cases from among 735 appendixes removed at operation and sent to his laboratory. Since then a number of cases have been reported, particularly in the foreign journals. Thus Weinhold,[2] in 1909, removed a large appendiceal cyst from a woman aged 74, having previously made a diagnosis of pedunculated myoma of the uterus. Wilson[3] reports a case in which he had made a probable diagnosis of ovarian cyst, and another which ruptured during bimanual examination. Eden[4] encountered a case in which there was also a large cyst of the right ovary, which had ruptured. Recently, Hammesfahr[5] has described somewhat in detail his findings in two operative cases in which the contents of the cysts were pseudomyxomatous in character.

The formation of these cysts seems to be due chiefly to a chronic inflammatory process in the appendix, with obliteration of the lumen at the proximal end. Kinking of the organ and peritoneal adhesions may be causative factors.

In size, the cysts may range from very small to about 15 cm. long and 7 in diameter. The contents are generally described as thick, gelatinous, translucent material, which at times may be either blood-stained or greenish-yellow. It may be slimy or even watery in character. Most often the substance is made up largely of mucin or pseudomucin, but at times it may be colloid.

Usually the mucosa of the appendix has undergone marked atrophy or has disappeared. It may be pushed through the muscular coat in places to form with the serosa a false diverticulum.

The symptoms are commonly those of chronic appendicitis, but there may be no evidence of the trouble, not even a palpable tumor.

The importance of the condition depends on the possibility of rupture, which may give rise to the so-called pseudomyxoma of the peritoneum. According to Wilson,[3] only twelve cases of peritoneal pseudomyxomas arising in this way are on record; but Trotter[6] suggests that some cases with obscure symptoms may go unrecognized, and that others are regarded as examples of primary colloid carcinoma.

Through the courtesy of Dr. A. O. Singleton, who operated on the patient, we wish to report a case of unruptured, pseudomyxomatous cyst of the appendix.

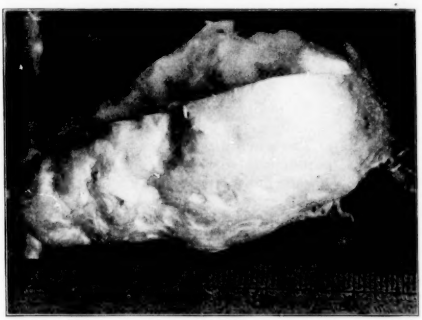
1. Corning: Albany Med. Ann., 1905, xxvi, No. 12.
2. Weinhold: Monatsschr. f. Geburtsh. u. Gynäk., April, 1909.
3. Wilson: Lancet, London, 1912, ii, 1496.
4. Eden: Lancet, London, 1912, ii, 1498.
5. Hammesfahr: Deutsch. med. Wchnschr., 1913, No. 31, p. 1501.
6. Trotter: Brit. Med. Jour., 1910, i, 687.

History.—C. T., negress, aged 48, married, housewife, rather obese, consulted Dr. Singleton in August, 1913. According to the patient the present illness began two years previously, characterized by irregular attacks of pain and discomfort in the right iliac region. Six months before seeing Dr. Singleton she was operated on, she said, for movable kidney, but she did not know what the operator really did. No relief was afforded by the operation.

Examination.—A distinct operative scar was found in the right lumbar region. Palpation revealed a large movable mass in the abdominal cavity, on the right side, but owing to the thickness of the abdominal wall, no additional information could be gained. Diagnosis, probably a floating kidney.

Operation.—This was performed, Sept. 3, 1913. After an incision had been made in the right lumbar region, the kidney was found to be normal and fixed. So the incision was extended and the peritoneal cavity opened. This revealed a large cyst of the appendix, extending upward, free from adhesions, and with a stump of apparently normal appendix about 3.5 cm. long. For about one-third of the length of the cyst there was a distinct mesentery. An ordinary appendectomy was performed. Recovery was uneventful, and since the operation (eight months ago) the patient has been in good health.

Gross Appearance of Cyst.—This measured 11 cm. in length and 5 in its greatest diameter, that is, near the proximal end. The surface was white and irregular, and the contents seemed to be held under slight pressure. It was fixed several days in formaldehyd solution, and then cut open. Thick, white, rather opaque, gelatinous material filled the cyst. This could be picked up in jelly-like masses with the fingers. Chemically the material seemed to be pseudomucin, as portions were dissolved in sodium hydroxid and not precipitated by an excess of acetic acid. The wall of the cyst varied in thickness from 1 to 4 mm. Apparently, dark-colored bits of tissue were embedded here and there in the contents, especially in the distal portion. Keeping the specimen in formaldehyd solution soon caused the contents to swell, so that the edges of the cut wall gaped widely.



Pseudomyxomatous cyst of appendix.

Microscopic Appearance.—Sections of the appendix near the cyst showed normal muscular coats with marked proliferation of submucosal tissue, so that the lumen was entirely obliterated. Sections of the cyst wall, taken from several different places, showed practically nothing but dense fibromuscular tissue, much of which had undergone hyaline degeneration. The nuclei of the peritoneum and of the connective tissue beneath were usually fairly well preserved. In no instance could epithelium be found, except the desquamated bits out in the cystic contents. The mucoid material itself, taking a light hematoxylin stain, was seen to be finely granular and at times fibrillar, with numerous irregular, open spaces.

THE EARLY DIAGNOSIS OF LEAD-POISONING *

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The subject of occupational diseases has of late been attracting considerable interest. We are coming to a realization that diseases caused by industrial poisons or conditions under which industries are carried on have a marked influence on the morbidity and mortality of the community. What is of still greater importance, we recognize that such diseases are, at least in a very large measure, preventable. Since 1911 fourteen states of the Union have enacted laws requiring physicians to report to designated state authorities occupational diseases which they are called on to treat. The lists of these occupational diseases in the various states are not uniform, but most of them contain such conditions as poisoning from lead, brass, phosphorus, arsenic or mercury or their compounds, or from wood alcohol, anthrax or compressed-air illness.

In view of the fact that physicians of many states are now required to report the above-named occupational diseases, it is pertinent to inquire as to their early diagnosis. When can a diagnosis be made sufficiently definite to warrant the physician in reporting it to the proper authorities? Of all the diseases in the list none is of so common occurrence as is the poisoning due to lead or its salts, on account of the great variety of industries in which the metal or its salts are used. I therefore propose to consider the early diagnosis of plumbism the most common and by far the most serious in its effects on the health of the working population.

Lead-poisoning presents itself in a great variety of manifestations, and while the diagnosis in a well-marked case is usually not difficult, it may not be so clearly defined in the early stages of the intoxication. The tendency in such cases is not to make the diagnosis unless the objective signs are found which are supposed to be pathognomonic of the disease. This tendency to postpone the diagnosis in the absence of certain objective signs is dangerous and often does incalculable harm. The physician who fails to recognize tuberculosis, for instance, without the presence of tubercle bacilli in the sputum, very often fails to avail himself of the opportunity of arresting the disease in its incipiency. The same is true of lead-poisoning. The waiting for certain signs before establishing the diagnosis may permit the poison to undermine the constitution of the worker beyond any remedial measures. The objective signs supposed to be pathognomonic of lead-poisoning, the presence of one or more of which is still regarded by many physicians as absolutely necessary before a diagnosis can be made, are the lead-line on the gums, basophilic degeneration of the red cells and the presence of lead in the urine and stools.

The technical difficulty of the last one is so great as to preclude it from being made a part of the routine examination in general practice. Moreover, the presence of lead in the excretions is not constant even in well-marked cases of lead-poisoning. On the other hand, lead has often been found in the urine and more frequently in the stools of persons exposed to lead who do not show any evidence of intoxication.

* From the clinic of the West Medical Service, Massachusetts General Hospital.

OVEREMPHASIS ON LEAD-LINE AND BASOPHILIC GRANULES

The presence of the lead-line, and basophilic degeneration of the red cells, are objective findings which are in practical use in the diagnosis of lead-poisoning. As a matter of fact, neither one of these signs is pathognomonic of the disease, and while their presence is a valuable aid in the diagnosis of obscure cases, their absence should not be given undue weight against the diagnosis of lead-poisoning, when a history of definite exposure to lead can be obtained.

Basophilic granules in the red cells may be found in severe secondary anemias in which hemolysis has taken place, and are, on the other hand, often absent in cases in which a positive diagnosis of lead-poisoning can be made. In looking over a large number of records in which a definite diagnosis of lead-poisoning was made in the Outpatient Department of the Massachusetts General Hospital, by the clinical symptoms and the presence of the lead-line, I found that in nearly 50 per cent., basophilic granules in the red cells were absent.

Sir Thomas Oliver, who has devoted a great deal of time to the study of lead-poisoning, states that in only few instances of the great number of examinations of the blood that he has made, in early as well as in late cases of plumbism, has he found the basophilic granules. Basophilic degeneration of the red cells, in short, does not possess the diagnostic value which some attribute to it, but can at most be regarded as an important confirmatory sign.

Still greater importance is attached to the presence of the lead-line.

In my investigation of some of the lead industries of Massachusetts several years ago, for the State Board of Health, I had occasion to confer with many physicians who, from time to time, treated patients engaged in these industries, and I frequently found that no matter how suggestive the symptoms complained of were of lead-poisoning, the diagnosis was not made because of the absence of the lead-line. As a matter of fact, the lead-line presents a great many anomalies, and irreparable harm will often be done when a diagnosis of plumbism is not made because of its absence. In the investigation referred to above, I have frequently seen well-marked lead-lines among workers exposed to lead who did not present, at the time of investigation or at any previous time, any signs of ill health. On the other hand, if one looks into the very extensive literature on the subject, one will find many cases of severe lead-poisoning reported in which lead has been definitely demonstrated in the urine and stools, and yet no vestige of a lead-line could be found. Moreover, the lead-line is extremely rare when the gums are in a healthy condition and when the teeth are well cared for. Dr. Oliver fed experimental animals with lead for a long time without observing any lead-line. If, however, an infection of the gums of such animals was produced, the lead-line appeared within a short time.

The distinction between lead absorption and lead-poisoning is not, as a rule, clearly borne in mind. All persons working in lead, unless the most unusual pre-

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cautions are taken, inhale or swallow some of the poison, but it is excreted through the kidneys and the intestinal tract. As long as the excretion corresponds to the absorption, no symptoms will manifest themselves. If, however, for some reason, the balance is destroyed and the excretion diminishes, lead will be stored up in the tissues and poisoning is the result. The presence of the lead-line simply means that the person has been absorbing lead, and is in itself of no greater weight in the diagnosis of lead-poisoning than is the fact that the patient's history shows that he is working in a lead process, in which we know that he inevitably absorbs lead. A careful inquiry into the nature of the industrial process in which the patient is engaged is therefore of the utmost importance. The history of exposure is the all-important factor in the diagnosis of plumbism.

In cases of non-industrial plumbism, however, in which no history of exposure can be obtained, the presence of the lead-line or of the basophilic granules is of inestimable value in the diagnosis, since it offers a clue for the explanation of certain symptoms which would otherwise be obscure.

The following case-reports, taken from the records of the Massachusetts General Hospital will illustrate the reluctance, even among good clinicians, to make a diagnosis of plumbism in the absence of the lead-line, or stippling:

CASE 1.—A man of 36, a sheet-metal worker for eleven years, handles a great deal of lead in his work, complains of pains in the abdomen, loss of weight, weakness of extremities and attacks of diarrhea followed by constipation. No lead-line.

CASE 2.—A man of 34, a painter for ten years, complains of attacks of colic, headaches, obstinate constipation and general nervousness. No lead-line, no stippling.

CASE 3.—A man of 22, a painter for four years, complains of constipation, attacks of severe abdominal pains and headaches. He looks pale; no lead-line, no stippling.

CASE 4.—A painter of 22, who has worked at the trade for ten years, complains of obstinate constipation, pain in his joints, headaches, numbness and weakness of extremities; he is easily fatigued; no lead-line or stippling found.

CASE 5.—A worker in a rubber factory for six years complains of abdominal pains, obstinate constipation, severe pains in lumbar region, loss of appetite, and general nervousness; no lead-line found.

CASE 6.—A man of 49, a painter for twenty-five years, gives a history of lead-poisoning when he first started his work. He now complains of tremor and weakness of hands so that he frequently drops his brush while at work. He has attacks of abdominal pains, pains in his joints, and is pale. No lead-line or stippling found.

CASE 7.—A man of 38, who worked in a car-factory for fourteen years, and part of whose work consisted of mixing lead, complains of sharp pains in the abdomen, attacks of dizziness, fine tremor of hands, metallic taste in the mouth and pains in the extremities. He lost considerable weight. No lead-line or stippling found.

In none of the foregoing cases was a definite diagnosis of lead-poisoning made. There is no doubt, however, that if a lead-line was present in any of these cases, or if stippled red cells were found, even if the symptoms had been less characteristic, a positive diagnosis of plumbism would have been made. Yet the occupation of these patients was sufficient evidence that lead absorption was taking place, and the symptoms were sufficiently characteristic to warrant a definite diagnosis without the corroborative evidence of the lead-line or stippling.

In consequence of the undue weight which is given to the objective signs, persons who show themselves, by the symptoms of which they complain, susceptible to the influence of lead, are permitted to continue at their work without any additional precautions and without any warning as to the danger to which they are exposed. This is shown by the following illustrative case-reports, taken from the records of the outpatient department of the Massachusetts General Hospital. These patients attended the clinic for a long time, and no diagnosis of plumbism was made because of the absence of the lead-line or stippling. At some later date, however, although the symptoms were the same, the diagnosis of plumbism was made because of the appearance of one or more of the objective signs.

CASE 8.—A worker in a rubber factory came to the clinic complaining of precordial pains, headaches, pains in the arms and attacks of abdominal pains. He had evidence of mitral regurgitation. There was no lead-line, and no diagnosis of lead-poisoning was made. He came again eight months later with the same symptoms but of increased severity. A lead-line was found present at this time, and a diagnosis of plumbism was made.

CASE 9.—A painter of 23 came to the clinic, November, 1907, complaining of pain in the back, numbness and weakness of extremities, abdominal pains, headaches and nervousness; no lead-line was present, and no diagnosis was made. In 1912 he presented himself with the same symptoms. Lead-line and stippling were found and a diagnosis of lead-poisoning was made.

CASE 10.—A painter presented himself at the clinic in July, 1907, complaining of constant severe pain in the upper abdomen, attacks of vomiting, pains in the knees and dizziness. A diagnosis of arteriosclerosis was made. In July, 1913, he presented himself again with the same symptoms. A lead-line and stippling were found. Diagnosis, lead-poisoning.

CASE 11.—A machinist of 28 came to the clinic in 1906, complaining of attacks of severe abdominal pains, bad taste in the mouth, obstinate constipation, attacks of nausea and vomiting. He came many times during 1910 and again in 1911, complaining of the same symptom-complex. In December, 1911, a lead-line was found and many stippled cells. Diagnosis of lead-poisoning was made.

CASE 12.—A worker in a rubber factory, aged 57, came in 1904 complaining of pain in the cardiac area and the right shoulder, pains in hips and legs, weakness of extremities, dizzy spells, easily tired and constipated, also wasting of extensor muscles. No lead-line was found (patient had false teeth). No diagnosis of lead-poisoning was made until 1905, when lead was found in the urine.

CASE 13.—A carriage painter of 38 came in 1903 complaining of pains in the back between the shoulder-blades. There was no record of lead-line or stippling. No diagnosis was made. Later, in the same year, he came complaining of attacks of dull pain in the region of the umbilicus, and sharp pains in the lumbar region which kept him awake for two nights. A history of alcoholic excess was obtained for the last two weeks; no lead-line was found; diagnosis, alcoholism. In 1908 he came again, complaining of pains in his back and in his feet, general weakness and nervousness; no diagnosis was made. Several weeks later he came again complaining of the same symptoms. Lead-line was present at this time. Diagnosis of lead-poisoning was made.

The unwarranted delay so frequent in diagnosing plumbism even in the presence of a definite history of exposure to lead is well illustrated by the last case. For nearly five years this man had been presenting himself at various times at the hospital, complaining of a train of symptoms which, taken together with his work, should have made a diagnosis possible, and yet

he was permitted, during all that time, to continue his work without any special precautions, until the lead-line appeared, when the diagnosis of lead-poisoning was made.

EARLY SYMPTOMS OF PLUMBISM

It would of course be folly to attribute to lead all the ill health of lead-workers. The symptoms, therefore, have to be considered carefully before the responsibility of the diseased condition is laid to the industry. The symptoms of early plumbism are not well defined, yet there is a group of symptoms which, when not open to explanation on any other basis must, when a history of exposure to contact with lead has been obtained, be taken as evidence of early lead-poisoning. Indeed, it is important to inquire carefully as to any possible industrial exposure to lead whenever certain ill-defined states of ill health present themselves among workers, when such diagnoses, for instance, as anemia, debility, constipation, lumbago or chronic arthritis are made. Inquiries as to the details of the patient's work should be made, for unless the physician has a familiarity with the various industrial processes, the general designation of the patient's work may not indicate any exposure to lead.

Among the earliest manifestations of chronic lead-poisoning is the pallor of the skin, which is often out of all proportion to the actual anemia — that is, the reduced hemoglobin and red count. Associated with this pallor is a wasting of the subcutaneous fat first noticed in the infra-orbital region and about the buccinator muscles, producing a pinched appearance of the face. General muscular weakness with "rheumatic" pains in the joints, muscles and more particularly in the back, are of frequent occurrence in the early stages of the disease. Among the gastro-intestinal symptoms are anorexia, nausea, attacks of constipation, or constipation alternating with diarrhea. Loss of appetite, from whatever cause, among workers exposed to lead is always a symptom to be taken seriously, for, as has been pointed out by Legge, the absorption of lead is greatly increased when the stomach is empty. The most frequent gastro-intestinal symptom is the more or less characteristic colic generally referred to the lower abdomen, which comes in paroxysms, and may or may not be associated with tenderness. General nervousness, persistent headaches and dull mentality are also among the earlier manifestations. These symptoms should always be regarded seriously when occurring in persons exposed to lead, for they may be the precursors to the more serious nerve-lesions, such as wrist-drop, encephalopathy and to the more insidious and less dramatic changes in the vascular and excretory systems, that of arteriosclerosis and chronic nephritis.

IMPORTANCE OF EARLY DIAGNOSIS OF OCCUPATIONAL DISEASES

The laws enacted in many of the states requiring physicians to report to a central authority certain occupational diseases are measures in the interest of the public health. These diseases are preventable, and the duty of the central authority to whom the reports are made is, or should be, to investigate the cases as they are reported, trace the source of the poisoning, instruct the patients as to precautions, and undertake preventive measures against the occurrence of other cases.

In occupational diseases, as well as in communicable diseases, the most effective weapon in the prevention of their frequent occurrence as well as in minimizing the serious consequences to the worker, leading to permanent injury to health and often terminating in death, is to discover these cases in their incipiency. This responsibility rests with the physician. He is in the vanguard in public health activity. It is through him that the public health authorities are made aware of the existence of preventable diseases, so that proper steps may be taken to detect and eradicate the dangerous spots which threaten the health and life of the community.

There is still another point of view which makes the recognition of occupational disease, whether it is due to lead or other industrial poisoning or conditions under which people are employed, of great importance. To remedy any social evil the first essential is to recognize its presence and its extent. It is only by a realization of the great amount of sickness and incapacity that is produced by occupational diseases that we can expect the proper remedial measures to be brought about. We have at present no available data of the extent of the well-defined specific occupational diseases, and still less adequate is our knowledge of the general effects of various industrial processes on the health of the workers. Our morbidity and mortality statistics, as far as their relation to occupation is concerned, are hopelessly inadequate.

The occupations recorded on hospital records are of little or no value as far as the study of the effects of occupation on health is concerned. The term "laborer," for instance, a designation assigned to a large proportion of the male outpatients, covers every conceivable kind of unskilled labor, and throws no light as to the nature of the work. The term "railroad worker" may mean a locomotive fireman, a gate-tender, or used as in a recent case which came to my notice, to designate the work of a young woman who was folding railroad time-tables in a printing-office.

A careful analysis and recording of the patient's work is essential not only for the diagnosis of the well-known occupational diseases, but also to extend our knowledge as to the effects of certain occupations on mortality and morbidity.

An intensive study in occupational diseases is now being carried on by Miss Susan Holton at the Social Service Department of the Massachusetts General Hospital under the direction of Dr. David L. Edsall. It is only by such intensive work that we may hope in time, by the accumulation of sufficient material, carefully investigated and recorded, to draw any inferences as to the effects of the various industrial processes on health.

SUMMARY AND CONCLUSIONS

The reporting of occupational diseases is a public health measure. Early diagnosis of these diseases is essential both to protect the worker from the more serious effects of the industrial poisons and to gather information as to the prevalence of these diseases.

In the diagnosis of plumbism, the most frequent of occupational poisoning, there is in many quarters a tendency to give too much emphasis to the presence of the lead-line or basophilic degeneration of the red cells. While the presence of these signs is often of great aid in the diagnosis of obscure cases of non-industrial origin, their absence should not prevent a

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diagnosis when certain symptoms characteristic of early plumbism manifest themselves, more particularly when a history of exposure to contact with lead can be obtained.

The history of exposure is the all-important aid in the diagnosis, and careful inquiry should be made by the physician as to the details of the patient's work, and he should not be satisfied with a general designation which may not give any indication of exposure to lead.

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THE EFFECT OF INTRASPINAL INJECTIONS OF SERUMS WITH AND WITHOUT PRESERVATIVES *

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It is an established fact that the administration of antimeningitis serum by intraspinal injection has practically turned the former 70 per cent. mortality from epidemic meningitis into 70 per cent. recoveries. Accumulated experience, however, has apparently shown that the injection of the serum itself may have been the cause of death in a very small number of cases. These deaths have been explained in a variety of ways, and of these I shall mention here only the statement of S. P. Kramer that they were caused by the trikresol which had been added as a preservative to the serum, a contention which has recently been supported by Hale[1] on the basis of experimental work on dogs and cats.

EXPERIMENTS WITH TRIKRESOL

Because of the importance of this matter I have carried out during the last few months a series of experiments not only with dogs, but also with monkeys, in order to determine what effects are produced when serums containing 0.3 trikresol, 0.3 per cent. chloroform or 0.3 per cent. ether are injected subdurally. As control injections, horse-serum without any preservative, and Ringer solution were employed. In all animals the blood-pressure was recorded either from the carotid artery (dogs) or from the femoral artery (monkeys); the respiration was registered in all by means of a pleural cannula. The intraspinal injections in the dog were made after a laminectomy had been performed, for the results without this were very uncertain; in monkeys, however, the subarachnoidean space was tapped exactly as in human beings by introducing a needle into the second to the fourth lumbar space. The dogs were maintained at a constant level of ether anesthesia by intratracheal insufflation, a procedure which absolutely prevents death from central respiratory causes. The monkeys were kept under ether anesthesia by means of an ordinary ether cone and received no respiratory aid whatsoever, but always breathed spontaneously. The chloroform and ether serums were not warmed before injection.

The results of these experiments are briefly as follows:

Dogs are much more sensitive to the intraspinal injection of 0.3 per cent. trikresol serum than monkeys, but dogs nevertheless tolerate up to 6 c.c. and more per kilogram without danger as a rule, provided that an efficient artificial respiration is maintained. In the dog, stoppage or impairment of the respiration is the great danger; the drop in blood-pressure, though often pronounced after larger doses, does not persist if the respiration is efficient.

ACTION IN MONKEYS

Monkeys, on the other hand, are relatively extremely resistant to 0.3 per cent. trikresol antimeningitis serum, and tolerate injections aggregating more than 6 c.c. per kilogram usually without any dangerous effect on spontaneous respiration. The blood-pressure generally shows a more or less decided drop, but the normal level is regained within some minutes. To illustrate the enormous quantities which a monkey can tolerate, the following experiment may be mentioned: A monkey of 2,835 gm. received intraspinally 21 c.c. of 0.3 per cent. trikresol antimeningitis serum (New York Board of Health), 23 c.c. 0.3 per cent. chloroform antimeningitis serum (Massachusetts Board of Health) and 10 c.c. of Ringer solution, and was in excellent condition at the end of the experiment. It is of interest that the same animal had received the previous day 6 c.c. trikresol serum and 15 c.c. chloroform serum intraspinally, and that on both days the respiration and blood-pressure were registered; moreover, on the second day the injections (usually 3 c.c. per dose, sometimes 5 c.c., at seven-minute intervals) were made while the animal had a full left-sided pneumothorax and was therefore not a normal animal.

Both in the monkey and in the dog the effects obtained on the blood-pressure and respiration by trikresol seem partly dependent on an increased intraspinal pressure: local applications of 0.3 per cent. trikresol in saline on the medulla of dogs does not give the same quantitative effect on the respiration and blood-pressure as subdural injections; and in monkeys a single injection of trikresol serum following several injections of normal serum exerts usually a greater effect on the blood-pressure than when trikresol serum is injected first.

Tests with serums containing 0.3 per cent. chloroform, 0.3 per cent. ether or no preservative at all, showed that they exerted qualitatively the same effects when injected intraspinally as trikresol serum, but quantitatively the disturbances of respiration and blood-pressure were definitely less. Chloroform serum caused in general a smaller effect on the respiration and blood-pressure than trikresol serum, but the best results were obtained with 0.3 per cent. ether serum and with serum without any preservative, although both still occasionally produced in the dog stoppages of the respiration lasting a minute or two, and a considerable lowering of the blood-pressure. In the monkey, however, normal serum or ether and chloroform serum produced practically only negligible effects on the respiration and blood-pressure.

THE IDEAL ANTISEPTIC

Without discussing the necessity for preservatives in therapeutic serums, it is clear that a volatile antiseptic would be the ideal one to use, for such a preservative could easily be removed by warming the serum container before injection.

The opsonic index of the same antimeningitis serum kept without antiseptics or preserved by 0.3 per cent.

* From the Department of Physiology and Pharmacology of The Rockefeller Institute.

1. For literature references see The Sources of Danger in Antimeningitis Serum, editorial, THE JOURNAL A. M. A., May 23, 1914, p. 1661.

trikresol, 0.3 per cent. chloroform or by 0.3 per cent. ether showed practically the same value after one month, according to experiments carried out by Dr. Martha Wollstein.

The experiments show that dogs in which laminectomy has been performed are much more sensitive to 0.3 per cent. trikresol serum than are monkeys in which intraspinal injection is directly made. The monkey in this as in other respects is more nearly related to man; and in view of the rarity of the accidents mentioned above in man it may be inferred that monkeys react to intraspinal injections in a manner more truly representing the effects in him.

It should be emphasized that respiratory failure is the great danger after trikresol injection in the dog, and that it occurs only rarely in the monkey. In my experiments the drop of blood-pressure even if profound was never fatal in the dog or monkey unless the respiration was permitted to fail. This danger was reduced in two ways: by being prepared to give efficient artificial respiration when necessary, and by replacing the trikresol with a volatile antiseptic like chloroform or ether. It must be pointed out, however, that artificial respiration was apparently necessary in some cases even when serums without any preservatives were injected intraspinally.

APPEARANCE OF NON-COLLOIDAL NINHYDRIN-REACTING SUBSTANCES IN THE URINE

UNDER NORMAL AND PATHOLOGIC CONDITIONS AND DURING PREGNANCY *

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While we were studying the question of the possible substitution of aluminum hydroxid cream for the parchment diffusion thimbles in the Abderhalden serum diagnosis of pregnancy, there appeared Warfield's paper[1] on the presence of dialyzable ninhydrin-reacting substances in the urine of pregnant women. This led us to turn our attention to a study of the urine under normal and pathologic conditions and during pregnancy.

LITERATURE

Since the publication in 1906 of Pfaundler's[2] work on the determination of amino-acid nitrogen in the urine, there has remained little doubt as to the appearance of appreciable amounts of this class of compounds in normal urine. This work was confirmed a few months later by Krüger and Schmidt,[3] using a different method. These investigators found amino-acid nitrogen to the amount of from 0.325 to 0.45 gm. in from 5 to 6 per cent. of total nitrogen in normal urine.

Embden,[4] and Embden and Reese,[5] on the basis of results obtained by using their modification of the beta-naphthalin-sulphochlorid method, came to the conclusion that as high as 1 gm. of glycocoll may be eliminated daily under normal conditions.

In addition to the glycocoll compound there were found compounds of other amino-acids which Embden and Reese were, however, unable to identify. The weights of the amino-acid compounds isolated in five normal cases were as follows: 1.62, 2.74, 1.48, 1.73, 2.80 gm. daily. These amounts represent 4.32 to 5.10 per cent. of total nitrogen. This, according to the investigators, expresses the minimal amount. Since 1905 many investigations have been carried out on the amount of amino-acid nitrogen eliminated under normal conditions.

Frey[6] found from 0.2 to 0.5 gm. amino-acid nitrogen under normal conditions, Magnus Levy[7] from 2 to 6 per cent. of the total nitrogen, Henriquez[8] 2 per cent. of the total nitrogen on a mixed diet, Masuda,[9] in the case of low protein diet, from 1 to 3 per cent. of total nitrogen, and on high protein diet from 4 to 5 per cent. Joshida[7] found amino-acid nitrogen varying from 0.5 to 2 per cent., and Falk and Saxl[10] from 1.5 to 3 per cent., Siquorelli[11] found 2 per cent. of total nitrogen in normal cases on mixed diet. Galambos and Tausz[12] found from 0.236 to 1.05 gm. amino-acid nitrogen and 1.58 per cent. and 4.35 per cent. of total nitrogen.

It would appear from the evidence presented that amino-acids form an appreciable part of the normal nitrogenous elimination. If ninhydrin reacts with compounds containing the intact amino group in the α, β, etc., position to the intact carboxyl group, then all normal urine should react positively with the reagent, unless the urine contains interfering substances or the content of the amino-acids falls below the limits of delicacy of the reagent.

COLLECTION OF SAMPLES

The urine was obtained fresh and in nearly all cases about four hours after meal-time. The patients suffering from various pathologic conditions were on a liquid or light diet with the exception of the tabes and general paresis patients who were on a general diet. The pregnant women and the normal persons were on a general mixed diet.

METHOD

For the removal of the colloidal substances in the urine we used the aluminum cream according to the method of Marshall and Welker,[13] who showed that this substance can be used for the quantitative removal of colloids from their solutions. Ten c.c. of urine was mixed with an equal volume of aluminum hydroxid cream and the mixture was shaken and filtered. Ten c.c. of the filtrate was treated with 0.2 c.c. of a 1 per

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* Owing to lack of space, this article has been abbreviated in The Journal by omission of several tables. The complete article is contained in the author's reprints.

1. Warfield, Louis M.: Presence of Dialyzable Products Reacting to Abderhalden's Ninhydrin in the Urine of Pregnant Women, The Journal A. M. A., Feb. 7, 1914, p. 436.
2. Pfaundler: Ztschr. f. physiol. Chem., 1900, xxx, 75.
3. Krüger and Schmidt: Ztschr. f. physiol. Chem., 1900-1901, xxxi, 556.
4. Embden: Verhandl. d. Cong. f. inn. Med., 1905, xx, 304.
5. Embden and Reese: Beitr. z. Chem. Physiol. u. Path., Hofmeister's 1905-1906, vii, 411.
6. Frey: Ztschr. f. klin. Med., 1911, lxxii, 383.
7. Cited by Galambos and Tausz, Ztschr. f. klin. Med., 1911, lxxiii, 325.
8. Henriquez: Ztschr. f. physiol. Chem., 1909, lx, 1.
9. Masuda: Ztschr. f. exper. Path. u. Therap., 1911, viii, 629.
10. Falk and Saxl: Ztschr. f. klin. Med., 1911, lxxiii, 325.
11. Siquorelli: Biochem. Ztschr., 1912, xxxix, 36; 1912, xlvii, 482.
12. Galambos and Tausz: Ztschr. f. klin. Med., 1913, lxxvii, 14.
13. Marshall and Welker: Jour. Am. Chem. Soc., 1913, xxxv, 820.

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cent. ninhydrin solution and heated on a Chaddock burner for exactly one minute after boiling had begun. The depth of color was observed and noted after the tubes had been standing for half an hour at room temperature. In all the samples containing albumin the filtrate from the aluminum treatment was tested by means of the heat coagulation or Heller's ring test, in order to be certain that sufficient aluminum hydroxid had been used to remove all the albumin. A summary of results is given in Table 1. A complete tabulation of the results will be incorporated in the protocols in the reprint of this paper.

EXPERIMENTS OF COMPARATIVE STRENGTH OF REACTION WITH THE FILTRATES FROM URINE, TREATED WITH ALUMINUM HYDROXID AND THE DIFFUSATES FROM PARCHMENT THIMBLES

A study was made of the comparative strengths of the color reactions with ninhydrin when the methods of diffusion through parchment thimbles and precipitation by aluminum hydroxid were used to remove the colloids. A number of urines which gave strongly positive reactions were compared. The diffusion was carried on in C. S. and S. 579 dialyzing thimbles, which had been previously tested to insure impermeability to albumin and equivalent permeability to non-colloidal substances.

Diffusion time was twenty-one hours at room temperature.

The depth of blue color brought out on boiling 10 c.c. with 2 c.c. of a 1 per cent. of ninhydrin solution was greater in diffusates than in the filtrates from aluminum hydroxid.

These results are shown in Table 2.

A comparative study was made of the strength of the ninhydrin reaction on the urines direct, on the filtrates after treatment with aluminum hydroxid and on the diffusates through collodion bags and parchment thimbles.

Ten urines were studied from cases of acute contagious diseases. The urines were obtained fresh and the reaction with ninhydrin on the urine direct and on the filtrate after treatment with aluminum hydroxid was studied at once. The diffusion through collodion bags and parchment thimbles was allowed to proceed eighteen hours and the diffusates tested with ninhydrin. The results are shown in Table 3.

Contrary to the conclusions of C. E. M. Fischer,[14] that the reaction might just as well be applied to any

14. Fischer: Ninhydrin Reaction of Urine, Correspondence Department, THE JOURNAL A. M. A., March 21, 1914, p. 950.

TABLE 1.—SUMMARY OF URINARY ANALYSES AND NINHYDRIN REACTIONS

Class	Whole No. Cases	Specific Gravity Average	Reaction		Albumin*		Indican*		Ninhydrin*	
			Nature of	No. Cases	Result of Test	No. Cases	Result of Test	No. Cases	Result of Test	No. Cases
Normal	8	1.0210	Acid	2	0	8	±	2	+++	4
			Not tested	6			0	6	++	1
									+	2
									—	1
Pregnant women	22	1.0261	Acid	20	+	6	++	2	+++++	5
			Faintly acid	2	±	8	+	4	++++	2
					0	8	±	8	+++	8
							0	7	++	3
							Not enough	1	+	1
									0	3
Carcinomas	13	1.0176	Acid	9	+++	1	++	1	+++++	2
			Faintly acid	2	+	1	+	5	+++	1
			Alkaline	2	±	6	±	4	+++?	1
					0	5	0	3	++?	1
									+?	1
									0	7
Burns	3	1.0196	Acid	2	±	1	+	2	+++	1
			Alkaline	1	0	2	±	1	++	1
									+?	1
Frost-bite	2	1.0245	Acid	2	0	2	+	1	+++	1
							0	1	++?	1
Diabetes	5	1.0288	Acid	4	+++	1	+	2	+++	1
			Slightly alk.	1	±	1	0	3	+?	1
					0	3			?	3
Tabes	21	1.0219	Acid	18	±	2	++	1	+++++	2
			Faintly acid	1	±?	1	+	3	++++	1
			Alkaline	1	0	18	+	6	+++	1
			Faintly alk.	1			0	2	++	3
							Red	8	++?	2
							Deep red	1	0	12
General paresis	2	1.0230	Acid	2	±	1	+	2	?	..
					0	1				
Tuberculosis	10	1.0235	Acid	10	+	1	+	3	+++?	6
					±	2	±	6	?	4
					0	7	0	1		
Pneumonia	7	1.0157	Acid	6	+++	1	++++	1	+++	1
			Alkaline	1	++	1	+	2	+++?	1
					0	5	±	1	++?	2
							0	3	+?	1
									0	2
Contagious diseases	28	1.0185	Strong acid	5	+++	2	++	2	+++++	2
			Acid	20	++	2	+	5	++++	2
			Faint acid	2	±	2	±	5	+++	4
			+ Acid	1	±—	1	0	16	++	2
					0	21			++?	5
									+	3
									+?	3
									0	7
Miscellaneous	3	1.0196	Acid	2	±	1	+	1	0	3
			Alkaline	1	0	2	0	2		
Total number of Urines studied	124	.....	.....	..	.....	..	.....	..	.....	..

* In these columns ± means trace, ± —, faint trace, and ±?, very faint trace.
1. Probably due to ingested iodid.

albumin-free urine, we find that the reaction is much better brought out after treatment by aluminum hydroxid or dialysis.

CONCLUSIONS

1. The presence of non-colloidal ninhydrin-reacting substances in urine is of no value as a means of diagnosing pregnancy.

2. The reaction may be absent or inhibited in the urine of pregnant women as well as in normal and pathologic urine.

3. In the various urines treated the only difference in the ninhydrin reaction between the diffusates through parchment, and the filtrates from the aluminum treatment were those of intensity of colors, the aluminum filtrates showing a less intense color with ninhydrin.

TABLE 2.—COMPARATIVE STUDY OF THE NINHYDRIN REACTION ON THE DIFFUSATE OF URINE THROUGH PARCHMENT THIMBLES AND THE FILTRATE AFTER TREATMENT BY ALUMINUM HYDROXID CREAM

	Parchment		Aluminum Hydroxid	
	Urinary Pigment	Ninhydrin	Urinary Pigment	Ninhydrin
1	Strong	++?	0	++?
2	Faint	+++++	0	+++
3	Faint	+++	0	++?
4	Negative	+++	0	++
5	Negative	+	0	+
6	Faint trace	+++++	0	+++++
7	Negative	++++	0	+
8	Strong	0	0	0
9	Faint	++	0	+

4. In the urines reacting positively with ninhydrin the removal of colloidal substances favors the production of the blue color given by this reagent with amino-acids. Such urines before diffusion or treatment with aluminum hydroxid give a color which is not so strong and has more of a reddish cast. This is not the result of the dilution alone.

TABLE 3.—COMPARATIVE STRENGTH OF REACTION WITH NINHYDRIN ON URINES DIRECT, ON THE FILTRATES AFTER TREATMENT WITH ALUMINUM HYDROXID CREAM AND THE DIFFUSATES THROUGH COLLODION BAGS AND PARCHMENT THIMBLES‡

No.	Urine Direct	Aluminum Hydroxid	Collodion Bags	Parchment Thimbles
1	*	0	0	0
2	Red† +++?	+?	Red† +++?	Red† +++?
3	0	++	+?	+?
4	*	+?	+?	++?
5	*	0	Red† ++?	+
6	0	0	+?	··
7	++++	+++	0	+
8	*	++++	Blue	+++
9	Red†++?	+?	+++++ ++?	Red† ++?
10	0	0	0	0

* No test made because of insufficient quantity of urine.
† Red reaction here means that the typical violet of the ninhydrin was modified by a reddish cast.
‡ In these columns o means negative.

5. The occurrence of either albumin or indican appears to have no influence on the ninhydrin reaction applied to the colloidal-free urine.

We wish to express our appreciation to the attending and house staffs of the Cook County Hospital for access to the clinical material and assistance in obtaining histories in the various cases.

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THE VIABILITY OF THE SPIROCHAETA PALLIDA IN DIFFUSE LIGHT AT ROOM TEMPERATURE *

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In connection with our work on the *Spirochaeta pallida* it occurred to us that it would be of much hygienic interest to determine how long the spirochete would survive, in diffuse light and at room temperature, under conditions simulating roughly those prevailing when syphilitic discharges are deposited as drops of fluid on hard surfaces, soaked in a cloth, a towel for instance, or dried on glass, as would occur in their deposit on drinking cups, etc.

In order to simulate as nearly as possible the conditions prevailing in discharges, we carried out this experiment with fluid cultures which were contaminated both with cocci and with bacilli in which very large numbers of spirochetes were present. The culture used was one that had been planted in a flask of mixed ascitic fluid and salt solution fourteen days before. This fluid contained rather more spirochetes per drop than we have seen, except in the most profusely positive primary and secondary lesions. In its composition of about half and half ascitic fluid and salt solution it was closely similar to exudates from the body.

The following experiments were made:

EXPERIMENT 1.—A series of twelve test-tubes, 20 cm. long, as used in the cultivation of the *Spirochaeta pallida* by Noguchi's method, were sterilized and, into the bottom of each were placed about 3 drops of the mixed culture. These tubes were then exposed, on the middle of a high table in a light laboratory room with southern exposure, in bright diffuse light. The temperature of this room ranged from 22 C. (71.6 F.) at the beginning of the experiment (April 27) to 25 C. (77 F.) at 6 p. m. and 21.5 C. (70.7 F.) at 10 p. m. At the end of varying periods, as indicated in Table 1, a bit of sterile kidney-tissue was placed into each tube, this covered with a mixture of neutral agar and ascitic fluid, the column then sealed with oil and the tube incubated. At the end of thirteen days, dark-field examinations were made and profuse growth found in the tubes marked "positive." The results of the experiment are found in Table 1.

TABLE 1.—RESULTS OF EXPERIMENT 1

Tube No.	Planted after Hours	Result Determined after 13 Days*
1	Immediately	+
2	½	+
3	1	+
4	2	+
5	3	+
6	4	+
7	5	+
8	6	+
9	7	+
10	11½	+
11	23½	—
12	31	—

* In this and the following tables + means positive and — negative.

EXPERIMENT 2.—In this experiment similar tubes were set up, but the material placed into them consisted of little bits of towel-cloth which had been dipped into the spirochete culture. An ordinary laboratory towel was cut into small squares, sterilized in a dry oven, and these little pieces dipped into the fluid culture until thoroughly soaked. The excess fluid was then shaken off but the cloth not thoroughly dried. Its condition was one of distinct moistness, though not drip-

* From the Department of Bacteriology, Columbia University, College of Physicians and Surgeons.

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ping, when placed into the tube. The exposure was carried on just as before, the little bits of towel remaining during the period of exposure in the bottom of the test-tubes. Plants were made as in the previous experiment. The results are shown in Table 2.

TABLE 2.—RESULTS OF EXPERIMENT 2

Tube No.	Planted after Hours	Result Determined after 13 Days
1	Immediately	+
2	½	+
3	1	+
4	2	+
5	3¼	+
6	4½	+
7	5½	+
8	6½	+
9	11½	+

EXPERIMENT 3.—In this experiment the culture material was allowed to dry on pieces of broken cover-slips. The sterile cover-slips were dipped into the culture and placed in a Petri dish into the incubator. The first tube was planted immediately, while the slips were still moist. After one hour in the incubator the second slip was planted and close observation showed that this was not yet entirely dry—a slight film of moisture still appeared on it. Before the third planting was made the slips were removed from the incubator and dried in the air. Subsequent plants were made with absolutely dry material.

TABLE 3.—RESULTS OF EXPERIMENT 3

Tube No.	Planted after Hours	Result Determined after 13 Days
1	Immediately	+
2	1	+
3	1¼	—
4	2½	—
5	3½	—
6	4½	—
7	5½	—
8	10½	—

These simple experiments show that, when kept moist, the *Spirochaeta pallida* can live in diffuse light and at room temperature, under conditions of mixed culture (as occurring in the ordinary contamination of materials from the patient) as long as eleven and one-half hours. From the third experiment it appears that drying kills the organism rapidly. During the period of drying, however, for as long as one hour, the spirochete may remain alive.

We are quite aware that the artificial conditions produced by us do not exactly simulate those prevailing when the material is deposited freshly from the patient on articles freely exposed to the air and not enclosed in test-tubes. As far as the first consideration is concerned, it would seem that organisms deposited fresh from the patient might be even more thoroughly protected than those employed by us, in that they are often contained in mucous discharges which dry but slowly. Such material on a towel hanging in an ordinary privy or bath-room in which there is apt to be a great deal of humidity, may remain moist for a considerable period, although probably not so long as did the pieces of towel enclosed in our test-tubes. As far as the light conditions are concerned, these were probably more severe in our experiments than they would be in the ordinary dark corner in which are located the places where such contamination might take place.

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Primitive Ideas.—The heart, according to Aristotle, was the seat of the soul, and the birthplace of the passions, for it held the natural fire, and in it centered movement, sensation and nourishment.—Elliott, Greek and Roman Medicine.

THE PRACTICAL SIGNIFICANCE OF THE ADRENALS *

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Although the last word in regard to the functions of the adrenals has by no means been said, enough evidence has accumulated to justify certain conclusions which will probably stand the test for further research.

Perhaps the most significant discovery of recent years is that epinephrin has the remarkable characteristic of going through the body and selectively stimulating the sympathetic nervous system, or, more specifically the terminal "receptive substance" which forms a functional connection between the sympathetic nerve-endings and the tissues.[1] The effect of the drug in any organ depends on whether or not it has a sympathetic innervation. If not, no effect occurs. If sympathetic fibers are present, the effect is stimulation or depression, depending on the function normally mediated by these fibers. Considering that the sympathetic system has a regulatory influence on many vital processes, the body is peculiarly exposed to the influence of the adrenal secretion. Moreover, this secretion acts strongly in remarkably dilute solution. For instance, the presence of 1 gm. in 100,000 liters, or 1 grain in 1,500 gallons of fluid bathing a piece of isolated intestine is sufficient to check its activity.[2] This being true, the adrenals are potentially a very important factor in regulating bodily activity. It thus becomes a very practical question as to when and under what conditions this highly potent substance is discharged into the blood-stream. If this occurs to any considerable extent, the adrenals must be regarded as an important factor in the normal physiologic functioning of the body as well as in nearly every symptom-complex.

The conditions governing adrenal discharge have been under investigation for the last three years in Cannon's laboratory at the Harvard Medical School.[3] Cannon, in studying the activities of the alimentary tract, had noticed that an outburst of emotion — fear or anger — resulted in a checking of peristalsis which persisted some time after all evidence of the emotion had passed. He suspected that this might be due to the presence in the blood of epinephrin secreted as a result of the emotion. Direct research confirmed the fact that augmented adrenal discharge does occur as a result of strong emotion. If emotion causes such an effect, pain, the most common cause of emotion, might be expected also to cause adrenal discharge. This was found to be the case. Asphyxia has been shown by several investigators to be equally effective.

Since this adrenal discharge is purely reflex, and since reflexes are usually of direct benefit to the individual, the question arises, Of what use is this arrangement? McDougal has suggested that emotions are the mental representation of bodily activities: anger represents combat, fear represents flight. In case combat results, pain is at once experienced. Either flight or combat causes partial asphyxia — at least until the body has had time to adjust to the conditions. The adrenal discharge might be supposed,

* Read before the Illinois State Medical Society, Decatur, 1914.

1. Elliott: Jour. Physiol., 1905, xxxii, 401.
2. Hoskins: Am. Jour. Physiol., 1912, xxix, 363.
3. For an excellent summary of the research see Cannon: Am. Jour. Physiol., 1914, xxxiii, 356.

therefore, to aid in some way in strenuous muscular activity; that is, to integrate the body for muscular response to the stressful condition which caused the discharge.

As a matter of fact, the injection of epinephrin does have a number of effects that aid in violent muscular activity. A quiescence of the whole digestive system results and the blood is shifted from the splanchnic circulation to the active muscles, the nervous and respiratory organs. The circulation in these organs is further increased by a rise of blood-pressure resulting from vasoconstriction of the splanchnic area and often of the skin, as well as by augmented cardiac discharge. A discharge of dextrose occurs, leading to hyperglycemia, whereby the laboring muscles supposedly obtain a better supply of energy material. This hyperglycemia has been observed as a direct result of strong emotion as well as of artificially augmented epinephrin. The well-known bronchodilator effect of epinephrin is of obvious utility in aiding free breathing whereby the oxygen necessary to violent activity is secured. Most striking of all, however, the laboring muscle itself is directly benefited. Cannon and Nice[4] observed that after the injection of epinephrin or stimulation of the splanchnic nerves to cause adrenal discharge, the efficiency of a fatigued muscle is improved, sometimes 100 per cent. Gruber[5] has found that recovery from fatigue is greatly hastened by the injection of epinephrin. The explanation of this fact is not definitely known, but a hint is offered by Evans and Ogawa's[6] observation that in the heart at least the assimilation of oxygen is increased by epinephrin. Cannon, Gray and Mendenhall[7] have discovered another remarkable fact which is of further use to the individual in case the stressful condition results in bodily injury: epinephrin lessens the coagulation time of the blood. This is true, however, only within physiologic limits for such quantities as can be obtained by stimulating the splanchnic nerves. In case greater quantities are employed, the coagulation is interfered with. With proper regard to this fact, epinephrin should come into frequent clinical use in combating hemorrhage. Cannon suggests that the pains of labor are of direct use to the mother in causing adrenal discharge and thereby protecting her from post-partum hemorrhage.

Some of these facts are of direct clinical importance. The emotional instability of the neurasthenic and continual worry or fear in the normal person probably subject them to frequent adrenal stimulation to the detriment of their vegetative activities, particularly of digestion. The dangerous influence of emotional stress in persons with high blood-pressure or hard arteries is to be ascribed partly to an adrenal factor. Similarly a diabetic is to be protected from conditions causing adrenal discharge because of the tendency of epinephrin to aggravate hyperglycemia.

The fact that injecting epinephrin is exactly equivalent to a general stimulation of the sympathetic system and the common supposition that an animal after removal of its adrenals dies in a condition of vasomotor failure, at least strongly suggest that the paramount function of these glands is to maintain tonus in the sympathetic system. This hypothesis may be designated the "tonus theory." It supposes that the adrenals constantly pour into the blood-stream epinephrin in sufficient amount to keep the sympathetic system in a condition of partial stimulation.

A number of facts may be mentioned, however, which are not consistent with the theory. In the first place, the adrenal glands seem to have at best but a very limited capacity.[8] The doses of the drug that are given in pharmacologic demonstrations are probably greatly out of proportion to any amount which the glands can secrete. If small quantities of the drug are given, the most prominent effect is a vascular depression.[9] If during periods of quiet existence the glands have any effect, it is likely that it is a depression of the sympathetic system.

We have excellent reason, however, to think that ordinarily the sympathetic system is not at all under epinephrin influence. It is easy to place ligatures in such a way that they can be drawn tight from outside the body and shut off the adrenal circulation without affecting any other important structures. While a blood-pressure record is being taken on an animal so prepared, the adrenals can be isolated quickly. Whatever influence they may have been having is immediately removed. If they have been keeping up sympathetic tonus, a fall of blood-pressure should immediately occur; but the effect of so isolating the glands is nil.[10]

Another fact may be mentioned: If epinephrin be injected at a very small but gradually increasing rate, no effect at all is at first to be seen. Then various changes occur. One of the earliest is a depression of peristalsis. This is noted before any tonic influence on the circulation appears.[11] It is obvious that any mechanism which could keep up sympathetic tonus only at the expense of intestinal paralysis would be of little use. This fact, as suggested by O'Connor, has an important clinical bearing. There have been numerous attempts to incriminate the adrenals in cases of high blood-pressure; but any degree of epinephrin secretion sufficient to cause continual hypertension is out of the question and the explanation, whatever it be, is to be sought elsewhere. This conclusion is strengthened by the observation that epinephrin glycosuria is also produced before the blood-pressure is raised.[12]

Attractive as the tonus theory is, such data render it no longer tenable. But the fact remains that adrenal extirpation is fatal and the final symptoms are supposed to include a primary failure of functions under sympathetic control, notably of blood-pressure. Elliott[13] has offered the suggestion that adrenal deficiency results in the loss, not necessarily, of any tonic stimulant, but of a substance necessary for the maintenance of sympathetic irritability; that is, that epinephrin is of importance in the transmission of impulses through the myoneural "receptive substance." There is nothing in the available evidence which disproves the suggestion.

4. Cannon and Nice: Am. Jour. Physiol., 1913, xxxii, 44.
5. Gruber: Am. Jour. Physiol., 1914, xxxiii, 335; ibid., xxxiv, 89.
6. Evans and Ogawa: Jour. Physiol., 1914, xlvii, 446.
7. Cannon and Mendenhall: Am. Jour. Physiol., 1914, pp. 225, 243, 251. Cannon and Gray: Jour. Physiol., 1914, p. 232.
8. Hoskins, R. G., and McPeek, Clayton: The Effects of Adrenal Massage on Blood-Pressure, THE JOURNAL A. M. A., June 7, 1913, p. 1778. Osgood, cited by Cannon: Am. Jour. Physiol., 1914, xxxiii, 356.
9. Moore and Purinton: Arch. f. d. ges. Physiol., 1900, lxxxi, 483. Hoskins, R. G., and McClure, C. W.: The Adrenal Glands and Blood-Pressure, Arch. Int. Med., Oct., 1912, p. 353. Cannon and Lyman: Am. Jour. Physiol., 1913, xxxi, 376.
10. Kahn: Arch. f. d. ges. Physiol., 1911, cxl, 216. Hoskins and McClure: Am. Jour. Physiol., 1912, xxx, 192. Trendelenburg: Ztschr. f. Biol., 1914, lxiii, 155.
11. Hoskins and McClure: Am. Jour. Physiol., 1912, xxxi, 59.
12. Gramenitzki: Biochem. Ztschr., 1912, xlvi, 186.
13. Elliott: Jour. Physiol., 1904, xxxi, p. xx.

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Another hypothesis equally capable of explaining the results of adrenal extirpation has been made, namely, that the adrenals in some way directly promote the metabolism of the muscular tissues.[14] In the absence of the glands, myasthenia develops. This asthenia, if it included the circulatory apparatus, would lead to low blood-pressure. The negative phase of the hypothesis is equally tenable, that is, that the adrenals destroy some substance which interferes with muscular metabolism. In this form the suggestion is an old one.

Elliott's suggestion is amenable to experimental investigation. If adrenal destruction results in an interference with sympathetic functioning, the fact should be easily demonstrable. Accordingly, a series of experiments has recently been carried out in our laboratory at Northwestern in the hope of determining the matter.[15] We used the vasomotor system as a criterion of the condition of the sympathetic system as a whole. The method, in brief, was to isolate the adrenal glands and then, after the animal began to react to adrenal deficiency, to test the functional condition of various parts of the vasomotor apparatus. The injection of pituitary extract, which acts on the vascular musculature itself, showed that this tissue was not impaired. Similarly epinephrin showed that the myoneural receptive substance reacted normally. The condition of the sympathetic cells proper was determined by injecting nicotin, which selectively stimulates these. At a time when the animal was almost moribund, the reaction to nicotin was not only unimpaired, but often even somewhat augmented. Finally, stimulation of afferent nerves produced an undiminished pressor effect. It was concluded, therefore, that the vasomotor system as such is not influenced by adrenal destruction. Parenthetically, attention may be called at this point to a fallacy in the clinical use of epinephrin as a test of *sympathicotonie* in exophthalmic goiter and other conditions. Epinephrin has little or no influence on the sympathetic system proper. Its action is restricted to peripheral structures, that is, to the "receptive substance." An exaggerated reaction to epinephrin does not at all indicate, as is popularly supposed sympathetic irritability. Indeed, as Elliott has shown, it is a characteristic sign of sympathetic degeneration. We have had numerous opportunities to observe that there is no necessary parallelism between true sympathetic irritability and augmented reaction to epinephrin. The use of epinephrin in this connection, therefore, is absurd. Nicotin would be a much more logical agent.

In connection with the experiments just mentioned we were able to confirm the observation that low blood-pressure does result from destruction of the adrenals, but that there develops a marked weakness of the heart which is alone enough to account for the hypotension. Experimental adrenal deficiency, therefore, is seen to involve selectively the cross-striated muscle, cardiac as well as skeletal. The same is probably true of Addison's disease.

In view of the fact that the adrenals consist of two distinct parts the question arises, Which of these is concerned in such experiments? The results of adrenal deficiency are commonly ascribed to loss of the medullary portion from which epinephrin is secreted. Without attempting any exhaustive discussion of the question, some of the more pertinent evidence may be mentioned. If *epinephrin deficiency* were the significant factor it could easily be compensated for by the continuous injection of the drug; but observers are agreed that this procedure is futile.[16] Death at best is but slightly delayed. Biedl[17] has concluded from extirpation experiments in animals in which the two parts of the gland are separate that it is the loss of cortical substance which causes asthenia. Various observers have seen animals kept alive after adrenal extirpation by the hypertrophy of fragments left behind in the operation; but in such cases it is the cortical tissue that hypertrophies.[17] Moreover, as Loewy[18] has recently reported, the characteristic syndrome of Addison's disease may develop in patients in whom the cortical tissue alone is deficient. Weed[19] of Johns Hopkins has recently reported a crucial experiment on the point. By successive operations an animal was deprived of all its adrenal tissue except one small fragment. Ligatures were then so placed that the circulation of the cortical part was destroyed, but the medullary part left unaltered. The animal promptly died.

On the whole, it seems most likely that the characteristic asthenia of adrenal deficiency is due to the loss of cortical tissue, whereas the medullary part has as its chief function the furnishing of a special stimulant to enable the body to cope with emergencies.

In summary we may say that the available evidence indicates that the adrenals secrete a substance, epinephrin, of remarkable potency. This substance selectively affects the tissues having sympathetic nervous control, thereby affecting many vital functions. Adrenal discharge occurs when the individual is subject to stress, as strong emotions, pain or asphyxia. The discharge integrates the body for muscular response: (*a*) by shifting the blood from the vegetative to the motor, nervous and respiratory organs; (*b*) by increasing blood-pressure; (*c*) by causing discharge of dextrose into the blood for use of the laboring muscles; (*d*) by dilating the bronchioles, permitting freer breathing, and (*e*) by reducing fatigue. It also hastens the coagulation time of the blood; *a*, *b* and *c* are of direct clinical importance.

During quiet existence the epinephrin secretion, if occurring at all, is below the threshold necessary to stimulate the sympathetic system. Sympathetic activity *per se* is not impaired by adrenal extirpation.

Adrenal destruction results in fatal asthenia of the skeletal and cardiac muscle. This is probably due to loss of adrenal cortex, not epinephrin-secreting tissue. Addison's disease is probably due, therefore, to functional failure of the adrenal cortex.

2431 South Dearborn Street.

15. Hoskins and Wheelon: Am. Jour. Physiol., 1914, xxxiv, 172.
14. Oliver and Schäfer: Jour. Physiol., 1895, xviii, 230. Hoskins and McClure: Am. Jour. Physiol., 1912, xxx, 195.
16. Battelli: Compt. rend. Soc. de biol., 1902, p. 1138. Gradinescu: Arch. f. d. ges. Physiol., 1913, cli, 203.
17. Biedl: Innere Sekretion, Berlin, 1913.
18. Loewy: Deutsch. Arch. f. klin. Med., 1913, cx, 373.
19. Weed: Verbal Communication before the American Society for Experimental Pathology, Dec. 30, 1913.

Qualities of a Surgeon.—Celsus, who lived during the reign of Augustus, described the qualities which should distinguish a surgeon as follows: He should not be old, his hand should be firm and steady, and he should be able to use his left hand equally with his right; his sight should be clear, and his mind calm and courageous, so that he need not hurry during an operation and cut less than required.

PRACTICAL STUDY OF GOAT'S MILK IN INFANT FEEDING AS COMPARED TO COW'S MILK *

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AND
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This study was made to learn, if possible, why goat's milk agrees better with some infants than cow's milk. The babies were selected at random from the inmates of St. Mary's Infant Asylum and Maternity Hospital. The goat's milk averaged from 0.5 to 1.5 per cent. richer in fats than the cow' milk used in this institution. Nevertheless, in making our modifications of the two milks the same amount of each milk was used in the stock formulas. Consequently the caloric value of the goat's milk modifications was greater than that of the cow's milk.

We shall present our data under various headings.

RESULTS OF GASTRIC ANALYSES

All test-meals were withdrawn one hour from the middle of the feeding. The amount recovered averaged, in fourteen cases, nearly twice as much of cow's milk formulas as goat's milk, the accurate ratio being 41:27 c.c. This points to the slower digestion of cow's milk.

The curds of the goat's milk formulas were smaller and more flocculent, corresponding to the appearance in test-tube digestion.

The analyses in fifteen cases with goat's milk, and in fourteen cases, in the same children, with cow's milk, gave the averages shown in Table 1.

TABLE 1.—AVERAGES OF ANALYSES WITH GOAT'S MILK AND COW'S MILK

	Goat's Milk	Cow's Milk
Free hydrochloric acid	Once	None
Combined hydrochloric acid	22.00	28.20
Acid salts	5.53	5.30
Total acidity	28.4	33.50

In a previous paper[1] we calculated the average gastric analysis on (*a*) barley-water and (*b*) proprietary foods containing some proteins, fat, sugar and carbohydrates, but no milk. For convenience of comparison, we give in Table 2 the averages of these and also of modified goat's and cow's milk, as shown in Table 1. This table indicates the greater stimulating effect on the stomach of cow's milk than goat's milk, the greater stimulating effect of both than of the proprietary foods made without milk, and finally the greater stimulating effect of all three than of barley-water.

In some vomiting cases Table 2 gives definite information as to the causal factor of this condition in these four kinds of foods (*a*) through direct gastric stimulation, (*b*) because of the size and density of curds and (*c*) because of slower digestion.

TABLE 2.—COMPARISON OF ANALYSES

	Free Hydrochloric Acid	Combined Hydrochloric Acid	Acid Salts	Total Acidity
Barley water	2.10	5.60	....	9.00
Proprietary foods containing some proteins, fat, sugar and carbohydrates, but no milk	None	10.50	....	17.40
Goat's milk with rice water and 2 per cent. cane-sugar solution	None	22.00	5.53	28.40
Cow's milk with similar and other modifications	None	28.20	5.30	33.50

* Read before the Pediatric Section of the New York State Medical Society at Rochester, April, 1913.

1. Sherman, DeWitt H.: Gastric Analysis in Infants, The Journal A. M. A., May 7, 1910, p. 1514.

CLINICAL OBSERVATIONS

As regards absorption and gain in weight our statistics are indefinite for three reasons: First, the babies being institution babies were apt to gain slowly; second, owing to an epidemic of streptococcus infection, which had swept through the infant's ward, causing gastro-intestinal disturbances so serious that about one-fifth of the babies died, the digestion of those who did recover, was more or less impaired; and third, because a certain number, who were doing well, were removed from the institution through adoption before our experiments were finished.

Of the number tested, sixteen cases in all, on similar formulas, twelve gained more rapidly on cow's milk modifications, and four on goat's milk. The gain of the former group was in the ratio of 3:1. The gain of the latter group was in the ratio of 9:1. Consequently those who did gain on goat's milk gained more rapidly than on cow's milk, but fewer gained on goat's milk.

In infantile atrophy and inanition, three cases, goat's milk was no more suitable than any other food.

Taste of Goat's Milk.—At first the babies did not finish all their bottles, not liking the flavor of the food as well as of cow's milk. This surprised us, because there seemed to us to be no unusual taste, as is usually supposed to be the case. If the milk is clean, we think the strong taste so common in Switzerland is unnecessary, and believe that the taste, as well as odor, is due to lack of udder cleanliness or possibly the type or food of the goat. In the goat's milk taken from three sources in this state — Geneva, East Aurora and Buffalo — we have never found the strong taste or odor commonly supposed to be characteristic of goat's milk.

Fats.—In goat's milk the fat averaged from 0.5 to 1.5 per cent. higher than in cow's milk. The more thorough emulsification of the fat in goat's milk, possibly the finer fat globules, prevents the separation of the cream on standing, as occurs in cow's milk. This fact may be an element in reducing the tendency to regurgitation in goat's milk as compared to cow's milk, and further, may be a very important factor in lessening the liability to sour vomiting, due to fatty acid fermentation, so common in high fat mixtures of cow's milk.

Strength of Formulas.—The babies, as a whole, tolerated equally well similar amounts of goat's or cow's milk with the same diluents, but as the goat's milk contained higher fat than cow's milk, they actually received more fat per feeding, and hence higher caloric value. It is consequently strange that more babies gained, as stated above, on cow's milk than on goat's milk modifications.

In our formulas, fat rarely averaged over 2.25 per cent. in goat's milk, and was a little less than 2 per cent. in cow's milk.

Stools.—On goat's milk the stools were as a rule smaller and of a more vivid yellow.

Age.—This did not influence materially the ratio of gain on goat's versus cow's milk, but the younger the baby, the more the evidence pointed toward a greater gain on goat's milk.

Vomiting.—Of twenty-four children receiving both goat's and cow's milk formulas, five vomited goat's milk some, and none cow's milk. The explanation

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may be the slightly lower fat percentage in the cow's milk formulas. On the other hand, in certain cases goat's milk is often tolerated in similar amounts because of the fact that there is less gastric stimulation, that is, smaller, lighter curds.

After getting accustomed to goat's milk more children seemed hungry, and cried more at night than when taking cow's milk.

The type of modification commonest used was similar amounts of goat's milk or cow's milk diluted with rice-water and 2 per cent. cane-sugar.

We are very much indebted to Dr. W. H. Jordan, director of the New York State Agricultural Experiment Station, for sending us for six weeks 16 quarts a day of goat's milk in the best of condition. We are also indebted to Sister Frances and Sister Clare at St. Mary's Infant Asylum and Maternity Hospital for their assistance and cooperation in our work.

680 West Ferry Street—2378 Main Street.

THE HEMAUROCHROME REACTION

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WITH
SELMA GRANAT AND SARA DUPONT
NEW YORK

In June, 1913, T. G. Davis[1] of Los Angeles called attention to a substance which he called "hemaurochrome,"[2] which he found present in the urine in certain diseases. This he concluded was derived from hematin and occurred as a result of blood destruction in such diseases as carcinoma and sarcoma, in a series of cases of which he never failed to find the reaction. He also found it in malaria, anemias due to intestinal parasites, essential anemia due to near malignant disease of the lymph-glands and ductless glands, especially in hyperthyroidism in splenic, myelogenous and pernicious anemias.

In the cases here tabulated the reactions were divided into (1) negative, (2) faint (pinkish color), (3) moderate and (4) marked reaction. As the real hemaurochrome gives a rather deep pink, only the moderate and marked reactions are considered as positive.

During the past eight months the urine of about 350 cases of all sorts from the medical and surgical services of the Presbyterian Hospital, New York, have been tested for this reaction and the results are here tabulated.

The greatest interest at first naturally centered about the cases of new growth of all kinds, as it was hoped that a valuable method of differential diagnosis between malignant and benign tumors might be proved, Davis having reported such favorable results. There were seventeen cases of carcinoma and two of sarcoma; of the nineteen cases, ten were proved malignant by necropsy or operation, and in nine the diagnosis was practically certain from the clinical findings. Of these nineteen cases, in four, of the malignancy of which there was absolute certainty, the reaction was missing or inconclusive. Four cases of those clinically malignant also failed to show the reaction. Six of the certainly malignant cases gave positive reactions and five of those clinically malignant did also. To put it in another way, four positively malignant and four probably malignant cases failed to give the reaction, and six positively malignant and five probably malignant cases gave the reaction.

The only reasonable conclusion one can reach in regard to these cases showing a new growth is that if the reaction is moderately or strongly positive, malignancy can be suspected. Negative findings, however, do not by any means rule out the diagnosis, so that the usefulness of this test is decidedly limited and Davis' contention is not borne out.

Of the three cases of malaria, two showed a marked reaction, and it seems likely that this would be regularly so. Of the anemias, three cases of splenic anemia failed to show a reaction. In two cases of pernicious anemia, one failed, and the other gave a marked reaction. Of the simple and secondary anemias, the percentage of hemoglobin seemed to have little influence on the presence or absence of the reaction; the complicating conditions apparently determined it. In classifying the cases by diagnosis, however, we were struck with the frequency with which we met a positive reaction in gastro-intestinal ulceration, particularly in cases diagnosed as peptic ulcer, whether gastric or duodenal. Of these there were fifteen cases of fair certainty, most of them proved by operation, necropsy or a typical history with hemorrhage. Of these, three gave no reaction (one was made one month after the operation) while twelve gave good reactions. Two of these cases gave the reaction during the early part of the series when we were chiefly concerned with the diagnosis of cancer, operations, however, proving them both simple ulcerations (in one, sections were cut from the excised ulcer). In five cases diagnosed as simple hyperchlorhydria without discoverable lesion, two cases gave a good reaction, and the subsequent history of both makes it most probable that they were really cases of ulcer.

It was hoped that in this large percentage of positive reactions in ulcer cases we might have found a helpful diagnostic point in the often difficult task of differentiating ulcer from chronic appendicitis or gall-bladder disease. There were six cases of chronic appendicitis examined, two of which gave positive reactions; both these cases were unproved; both patients complained of epigastric pain and were in the doubtful class.

Four cases of gall-bladder disease were examined, all failing to show a reaction, so that the presence of a good reaction in these doubtful cases is at least highly suggestive of ulcer.

One investigator thought that the presence of considerable amounts of indican in the urine accounted for many reactions, but in this series this was distinctly not the case, as of the fourteen cases that gave a marked reaction for indican, none showed a positive hemaurochrome. The presence of indolacetic acid had no influence on the reaction. There were twenty-four normal cases examined, none of them giving a reaction. There were numerous surprises in the following cases, however, in that some cases gave reactions entirely unexpectedly, none of them belonging to any of the classes in which Davis had found reactions:

Nervous dyspepsia, 2 positive. Both cases suspicious of ulcer, not proved.

1. Davis, T. G.: Am. Jour. Med. Sc., June, 1913, p. 857.

2. Hemaurochrome test: To 100 c.c. of urine add 10 c.c. hydrochloric acid. Heat slowly until it boils, remove and when cool add 30 c.c. ether. Agitate carefully. After twelve hours pour ether into white porcelain dish and evaporate. If the reaction is positive there is a deep pink color left in the dish.

Chronic cardiac decompensation, 21 negative, 3 positive.
Jaundice, 1 positive.
Gastroptosis, 1 positive.
Atonic constipation, 4 negative.
Intestinal fistula, 3 negative.
Typhoid fever, 9 negative, 4 positive (day of disease not a factor).
Arthritis deformans, 2 positive.
Diabetes mellitus, 5 negative, 2 positive.
Cerebral hemorrhage, 1 positive.
Hematuria, 1 positive.
Gonorrheal arthritis, 1 positive.
Aneurysm of arch, 1 positive.
Syphilis (or Wassermann), 19 negative, 4 positive.
Bronchitis, 10 negative, 1 positive (probably also malarial).
Pneumonia, 8 negative, 1 positive.
Neuritis, 1 negative, 3 positive.
Periostitis, 1 positive.
Dementia paralytica, 1 negative, 1 positive.
Chronic nephritis, 9 negative, 3 positive.
Septicemia, 1 positive.
Myositis, 1 negative, 2 positive.
Not diagnosed, 3 negative, 4 positive.
Esophageal stenosis, 1 negative, 1 positive.
Chlorosis, 16 negative, 15 positive.

One or more cases in the following conditions were examined, none of them showing a reaction: pleurisy, exophthalmic goiter, fatty liver, enterocolitis, acute poliomyelitis, vomiting of pregnancy, polycythemia, secondary anemia, ulcer of the leg, lipoma, enteroptosis, endometritis, uterine fibroids, acute appendicitis, acute parenchymatous nephritis, acute articular rheumatism, neurasthenia, acute leukemia, general arteriosclerosis, constipation, gastritis, tuberculosis, pyelitis, hydronephrosis, cholelithiasis, hysteria, scarlet fever and senility.

In reviewing these findings it will be seen that this reaction of hemaurochrome in the urine is far too frequently found in a wide variety of diseases to be of any specific importance. Indeed, one hesitates to attach any real importance to its presence in a case of suspected cancer or of gastric ulcer when we should like certain help in diagnosis, for the cases may be free of these diseases but still give positive reactions from some other and apparently trifling cause.

It may be said, however, that at least 50 per cent. of cancer cases give a positive reaction as well as a preponderating number of cases of peptic ulcer. In the latter condition especially it would seem worth while making the test in a very large number of cases, that sufficient operative or necropsy data might be obtained to establish its actual incidence. At present all one can say is that a positive reaction in cases presenting symptoms of peptic ulcer makes that diagnosis probable, particularly in contradistinction to a possible gall-bladder irritation or chronic appendicitis, and it may prove to be a test of greater negative than positive value.

66 West Fifty-Fifth Street.

The Speed of Progress.—Primitive views still prevail everywhere of man's relation to the world and to the uncharted region about him. So recent is the control of the forces of nature that even in the most civilized countries man has not yet adjusted himself to the new conditions, and stands, only half awake, rubbing his eyes, outside of Eden. Still in the thaumaturgic state of mental development, 99 per cent. of our fellow creatures, when in trouble, sorrow or sickness trust to charms, incantations and to the saints. —Osler: Specialism in the General Hospital.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. ITS ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

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Electrargol is an odorless, tasteless liquid, appearing transparent and reddish brown by transmitted light and opaque and gray by reflected light. The addition of potassium cyanide solution or of strong nitric acid yields a colorless transparent solution. The nitric acid solution yields a white turbidity on the addition of chlorids.

Therapeutics

SOME OVERLOOKED CAUSES OF CHRONIC ILLNESS

(*Concluded from page 1725*)

EYE-STRAIN

In spite of frequent reference to this subject, only a small proportion of physicians consider it important, though it is generally recognized that headaches are frequently due to eye-strain. About 90 per cent. of all recurrent headaches are due to conditions in the eyes. Of course, only a certain proportion of such headaches will be cured by correcting the optical defects; in fact, some patients will have eye aches in spite of corrective glasses. There may be congenital or acquired muscle weaknesses that are impossible to cure; that is, an eye that will meet one test at one time will give an entirely different test on other days. Such patients are the greatest chronic sufferers that we have; they are always subject to actual headache or disturbing reflexes, and still they do not die from it.

As just stated, actual headaches, especially frontal or in the eyes, are recognized by most physicians as due to eye defects, and such patients are sent to

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oculists. It is not recognized, however, that some patients who have no headache still may have reflexes from eye-strain. These reflexes are largely gastric, and vary from flatulence, hyperacidity and delayed digestion to dizziness, nausea and vomiting. These patients may have cold hands and feet, shiverings, feelings of faintness and often have palpitation attacks and irregular hearts. They may even have cardiac pains.

There are patients who have been treated for neurasthenia for months, or even years; patients who have had their stomachs washed out daily for a time, or weekly for a longer time for supposed stomach trouble; patients who have been treated for heart-disease, for hyperacidity, for gastric ulcer, for intestinal indigestion, etc., who have been cured by the proper glasses; if there is any astigmatism, keeping the glasses straight is especially important.

The following items are essential to the best results in cases of eye-strain:

1. The oculist must carefully test each eye and decide with care on the glasses needed.

2. The best optician possible should be selected to fill the prescription, and he should give careful attention to the kind of frame, the length of the posts and the closeness to the eye at which the glasses should sit, etc. In fact, the adjustment is all-important.

3. The patient should return to the oculist to ascertain if the glasses are correct and correctly adjusted.

The oculist is no more infallible than are the rest of us, and we should urge a patient to continue with one oculist until it is proved that he does not succeed in correcting the defect in the patient's eyes. Then the patient with defective eyes has a right to seek consultation just as if the disturbance were in any other part of the patient's anatomy. Also, it must be impressed on an astigmatic patient that a correct glass must always be in the proper position; the moment that that glass is deflected, it does not cure the ocular error. Consequently, frequent adjustment by the optician should be advised and urged. Also, the patient should understand that his eyes will change, and consequently the glasses will need to be changed, the length of time varying from six months to several years.

In making a careful examination of a patient who comes for varying conditions (and it is astonishing how many of these patients will come saying they have heart-trouble or stomach-trouble, and the whole emphasis is put on some other part of the body than the eyes) we should first exclude as well as we can every possible organic condition that could cause the disturbances present. The examination of the urine should never be forgotten. Specific questions aiming toward the elaboration of the part the eyes play in the disturbances are as follows:

1. Is there headache?

2. Is there nausea, and what is the relationship of the nausea or vomiting to the headache? Does the headache always precede the vomiting? We shall find that the "bilious attacks" are generally headache attacks. Also, we shall find, when the stomach is not at fault, that as soon as the headache ceases the patient has a good appetite for his next meal. No inflamed stomach can be bad one day and all right the next.

3. What is the periodicity of these headaches, or attacks of nausea or vomiting, or indigestions, or heart-pains? This means not only the frequency, but also the relationship to activity, which will be mentioned later.

4. What is the duration of the disturbance, whatever it is?

5. At what age did these disturbances begin? We shall often find that they go back to school-life.

6. Does the patient like a dark room?

7. When attempting to read, study or write, does he become unexpectedly drowsy?

8. What is the effect of diet? We often ascertain that a patient has omitted from his diet first one article of food and then another, until his diet is down almost to a starvation one, to no purpose; the stomach upset is still repeated.

9. What is the relation of the headaches or stomach or heart reflexes to reading, to work, to theater-going, to card-playing, to the watching of a parade, to visiting the stores and shops, to riding in the cars and to going to the "movies"? All of this will progressively inform us, and will gradually make an impression on the patient. Still we have said nothing about the eyes; we have simply, by our questions, elicited facts. We will find that such a patient often cannot remain throughout a theater performance, or even through a church service. He also gets nervous if he rides in trolley cars; he has ceased to play cards; has gradually stopped reading, and has even become melancholic.

After such questioning, your patient will soon say to you, "Why, Doctor, is it my eyes?" And yet you have not said a word about eyes.

The presbyopic headache is more likely to be in the morning, and may be occipital. Such a headache may be due to high blood-pressure, to insufficient action of the kidneys or to the absorption of some substance produced by intestinal indigestion. A frequent cause of such headaches, however, is presbyopia.

Before leaving this subject, let it be urged that when pain exists anywhere in the head, with functional stomach and heart disturbances, after excluding all other causes by careful examination, the patient's eyes should be studied.

DISTURBANCES OF THE PARATHYROIDS

We do not yet know a great deal concerning the activity of the parathyroid secretion, but it has been shown that these glands are necessary for life, that convulsions occur if all of them are removed, and that the feeding of parathyroid or the administration of calcium will prevent these convulsions and save life. They may be abnormally secreting in certain forms of epilepsy; they may not be doing proper work in many forms of convulsions. Some forms of tetany are quite probably due to a subsecretion of these glands, and the feeding of parathyroid, or the administration of calcium is beneficial. Subthyroid secretion and subparathyroid secretion may be the cause of some forms of puerperal convulsions. It may always be wise to give a pregnant woman, during the last months of pregnancy, medicinal doses of calcium. She needs it not only for the growth of her child, but also to preserve her own teeth and to prevent softening of her own bones, to say nothing, perhaps, of combating the intoxication that may be caused by an insufficient parathyroid secretion.

The relationship of hypersecretion of the parathyroids to certain nervous diseases has not yet been shown, although such a study presents many possibilities of clinical and therapeutic interest.

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SATURDAY, JUNE 6, 1914

THE "DAY OF REST" AND HUMAN EFFICIENCY

The refreshing influence of the weekly recurring "day of rest" on a person subjected to the strenuous routine of a busy life is a feature which he himself can duly appreciate in terms of his "feelings" and "spirits." If it is desired to demonstrate the need of such relaxation and the benefits derived therefrom in some objective way, a method is not easily forthcoming. The problem is one which, in its broadest aspects, has a far-reaching importance in every community. The efficiency of the working man, the desirable length of the working-day, the interjection of pauses for rest in the schedule of labor for persons of different ages and stations in life — questions of this sort are constantly arising for solution by some plan which excludes purely subjective impressions and permits some more scientific basis for a tenable judgment in the matter. Not only in the field of manual labor, but also in innumerable other walks of life, in the case of the schoolchild, the office-boy, the factory-girl, the banker and the merchant, efficiency is the key-note of the times. Fatigue is the enemy of efficiency; and to detect and compensate for or overcome it, is the duty of those concerned with the promotion of human welfare.

In view of this it is of more than passing interest, from the standpoint of both public and personal hygiene, to ascertain suitable methods of approach to the problem of fatigue and the lessons which it discloses. Dr. Martin[1] and some of his associates in the Laboratory of Physiology at the Harvard Medical School have devised a satisfactory procedure for estimating variations in electrocutaneous sensibility in human beings. With the onset of general fatigue a progressive rise occurs in the value of the threshold stimulus. This, in turn, signifies a progressive lowering of sensitiveness, and, according to the view of Grabfield and Martin, a diminishing tone of the nervous mechanism as a whole. The Harvard physiologists have made a long series of experiments on first-year medical students in good health who were following a regular routine of school work during six days of each week. The routine was interrupted weekly by the Sunday recess, an interval occupied variously by the students, but in no case in precisely the manner of the week days. The daily observations made on these persons during several weeks show that at the beginning of the week the irritability tends to be high, that from then until the end of the week there is a fairly continuous decline in irritability, as judged by the sensory threshold, and that following the interruption of the routine by the intervention of Sunday, the irritability returns to the original high point.

The decline in irritability is interpreted as a cumulative result of general fatigue incident to routine. What is even more significant, however, is the added fact that a pronounced break in the routine — such as the "day of rest" occasions — may bring about a return of sensitiveness to a high point or, in other words, it restores the nervous tone. Studies continued in this direction should lead to some useful conclusions regarding the optimum of work, with respect to both its duration and type, that should determine the conditions under which the organism of man may be maintained without depletion.

1. Martin, E. G., Withington, and Putnam, J. J., Jr.: Variations in the Sensory Threshold for Faradic Stimulation in Normal Human Subjects, III, The Influence of General Fatigue, Am. Jour. Physiol., 1914, xxxiv, 97. Grabfield and Martin: Ibid., 1913, xxxi, 308.

THE PRESENCE OF DIPHTHERIA ANTITOXIN IN THE BLOOD OF NORMAL PERSONS

It has been known for some time that diphtheria antitoxin is present in the blood of at least some persons who, so far as known, never have had diphtheria. It is believed that the antitoxin may be transmitted to the child from the mother; it is present in the blood of about 80 per cent. of the new-born, but it soon begins to fade away.

Recently a method has been devised by Römer which makes it possible to titrate accurately the amount of antitoxin in the blood. Briefly, the method consists in the intracutaneous injection in guinea-pigs of a minute quantity of diphtheria toxin and the serum to be tested for antitoxin. If no necrosis results, the toxin has been completely neutralized by antitoxin in the serum. By this method, which permits of accurate quantitative measurement, Otto[1] has tested the serum of a number of persons under different conditions, some being in close contact with diphtheria patients, others not. It was found that there was more than one one-hundredth of a unit of antitoxin in each cubic centimeter of the blood of those who, without having been sick, had been in close contact with cases of diphtheria; others usually had much less. Of six fresh nurses who had less than one one-hundredth of

1. Otto, R.: Ueber den Gehalt des Blutes an Diphtherie Antitoxin bei gesunden Erwachsenen, Rekonvaleszenten und Bazillenträgern, . . ., Deutsch. med. Wchnschr., March 12, 1914, p. 542; abstr., THE JOURNAL A. M. A., April 18, 1914, p. 1291.

a unit per cubic centimeter of blood, two suffered from diphtheria. These observations are significant because they indicate that this amount of antitoxin in the blood — one one-hundredth of a unit per cubic centimeter — probably suffices to protect against diphtheria. Indeed, Behring is said to have previously expressed his belief in the truth of this theory, and the object of his new diphtheria vaccine is to induce the production of at least that much antitoxin by the body itself. Older persons who have not had diphtheria may carry antitoxin in the blood in comparatively large quantities; nevertheless, the production of the antitoxin must be attributed to effects of invasion of diphtheria bacilli. In other words, the condition is one of active immunity due to infections of such mild character as to escape notice. Undoubtedly physicians and seasoned nurses who are freely exposed to diphtheria and yet rarely contract the disease owe their safety to an active immunity, the result of repeated contact with the bacilli. Otto found that diphtheria carriers, both those who had had the disease and those who had not, contained more antitoxin in their blood than patients who had just recovered from an attack. This shows that the mere presence of bacilli in the throat is sufficient to stimulate the production of antitoxin on which the immunity of the carrier himself would seem to depend.

These observations are of much interest with respect to the problems of susceptibility to diphtheria. By the means of Römer's method, and also of the method described by Schick,[2] it is now possible to determine whether or not a person is susceptible to diphtheria, a question that often is of great practical importance.

LARGE CITIES AS HEALTH RESORTS

"Were I a physician, I could prescribe nothing but — 'Recipe: ccclxv drach. Londin. per annum'" (365 doses of London a year). Thus wrote a noted Londoner, Horace Walpole. "If a few days in London does your neurasthenic patient no good, his case may well be helpless and hopeless." These, the words of Dr. Clippingdale addressing the balneologic and climatologic section of the Royal Society of Medicine a few weeks ago on London as a health resort and as a sanitary city.[3] Those who are accustomed to send their patients to the mountains, the fashionable spa, the seashore or the "health resort" may ask whether this is merely subtle humor or ill-concealed sarcasm at the expense of what has been called "the healthiest, and with the exception of Madrid, the ugliest city in the world." Or are we as a profession perhaps unduly oblivious of the suitability of a large city for certain maladies, chiefly of a psychopathic or neuropathic nature? Let us follow Clippingdale's essay in this direction.

There are not a few persons who have a dread of open spaces, for example, the country. It is to such that a very large city, on account of its size and the almost infinite number of diversions it permits, appeals most remarkably. The London life is to such persons the material on which they live. There are persons who prefer looking on men and artificial things. The loneliness of the woods and green fields appals them. Many a patient sent to the monotony of the sea-shore to recuperate finds his first real joy and comfort in the return to the motley throng of some great city. In this spirit Charles Lamb once wrote: "I am naturally inclined to hypochondria; but in London it vanishes, as do other ills. The man must have a rare receipt for melancholy who can feel dull in Fleet Street."

Despite the numerous epithets of antipathy which have been recorded against the great English metropolis, despite the alleged lack of esthetic attributes, Clippingdale stoutly defends its suitability for persons suffering from certain nervous "dyscrasiae"; cases, not of true pathologic conditions, but of simple digression from the normal; cases of hypochondria, melancholia, insomnia and neuralgia of non-organic origin, the drug and alcoholic habits and morbid introspection; cases, in fact, requiring the very opposite of a "rest-cure." He insists that many means for rational psychotherapy are provided by the diversions of a great city. "Its historic, artistic and literary associations," writes Clippingdale, "its many picture-galleries and museums, its numerous places of amusement, the business activity, the Attic regions of Belgravia and the Alsatian retreats of the East End all combine to produce a state of exhilaration not met with elsewhere. In fact, it has been jocosely remarked that if Londoners themselves fell into a state of lethargy nothing would arouse them from it unless it were two Parliamentary elections in one year, together with an earthquake in the Strand." There is, of course, an underlying germ of truth in all of this. Not every man can be rescued from depression by the soothing environment of a sanatorium or the joys of the outdoor life. The heart of the city is like balm to a persistent minority who must be dealt with in the practical experience of every consultant.

As for London itself, we are reminded that the annual exodus therefrom is a "comparatively modern invention." Speaking from statistical comparison of the general mortality, it is a healthy city. Its natural advantages are enhanced by the large number of open spaces in its midst. If the climate is nothing to boast of, it must be remembered that "fog is not an atmosphere of poisonous microbes." After all, the question of liveableness in any environment is, as a rule, one

2. An Easy Test for Susceptibility to Diphtheria, editorial, THE JOURNAL A. M. A., April 11, 1914, p. 1176.

3. Clippingdale, S. D.: London as a Health Resort and as a Sanitary City, Proc. Roy. Soc. Med., 1914, vii, Balneological and Climatological Section, p. 33.

of the temperament and adaptability of the individual. Americans have braved the dreaded tropics with comparative comfort and remained in perfect health. Manila and Panama have lost the terrors of climate, while the far North has become the field of pleasure-seekers. The healthfulness of an environment, urban or suburban, inland or coastwise, has become almost entirely a question of personal hygiene and mental satisfaction coupled with the indispensable accompaniments of public sanitation.

THEOBALD SMITH AT THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH

The recent announcement[1] of the appointment of Theobald Smith of Harvard University as the head of the projected department of animal pathology, made possible by an additional endowment to the Rockefeller Institute for Medical Research, deserves something more than passing mention. The epoch-making contributions of this distinguished American investigator are, we apprehend, not so prominently known as they deserve to be. There is a tendency in this country, in connection with all fields of scientific work, to magnify the importance of those researches which especially lend themselves to popular exposition or exhibit some scintillating feature which quickly catches the public eye. Too often as a people we forget the fundamental researches — sometimes laborious and even hazardous — on which the superstructure of some familiar practice is based. The wonders of the dynamo are allowed to overshadow the underlying experiments of Faraday; the originality of an investigator like Theobald Smith is forgotten in the contemplation of the practical results that have followed his efforts. It is a pleasure, therefore, to refer to a fine appreciation which has just appeared in *Science* from the pen of one who evidently is familiar with the history of medical microbiology.[2] We are reminded that while Dr. Smith was yet a subordinate in the Bureau of Animal Industry in Washington, he had occasion to study the Texas fever of cattle, then the cause of great economic loss to the farmers and cattlemen of that as well as other states, and of countries the world over. He found at last that the disease was caused by a protozoan parasite so small that it found a spacious abode within the purlieus of a single red cell of the blood, which it ruthlessly destroyed. Smith and Kilborne announced also that this piroplasma, as it was called, is conveyed from animal to animal through the intervention of a cattle-tick, in which the protozoan undergoes a developmental cycle on which the perpetuation of its kind depends. They further learned that cattle recovered from the fever had become immune, and though well, might indefinitely carry the piroplasma in the blood and be a perpetual source of infection for cattle fresh from another district.

The physician of to-day can well appreciate what the discovery of insects as carriers of infective microbes has meant to medicine and to mankind. This finding alone would entitle most workers to everlasting fame. Dr. Smith's epoch-making contributions did not stop with the study of the etiology of Texas fever. Smith and Salmon were the first to announce, in 1886, that animals could be immunized not only by living germs but by sterilized cultures of the dead germs. "This announcement," says the writer in *Science*, "did not seem to start even a ripple in the bacteriologic pool." The germinal idea contained in these early experiments, however, in the course of time resulted in the manufacture of antitoxin.

Probably few persons who are not experts in this field realize that the forerunner of the wonders of modern anaphylaxis is described in the *Theobald Smithsche Phänomen*, as our German colleagues early termed it. This is one of the numerous evidences of that keenness of observation which further preceded the important innovations in bacteriologic culture that are to-day indispensable. The distinctions between bovine and human tubercle bacilli emphasized by Dr. Smith are still fresh in the minds of those who have followed the long controversy on this subject.

Without recounting further details of an eminently successful career we may congratulate the Rockefeller Institute, already so fortunate in having made itself an unsurpassed center for medical research, on the discriminating selection of another distinguished and productive member.

THE AQUEOUS HUMOR

Various structures of the eye, such as the lens, suspensory ligament and vitreous humor, receive no direct vascular supply, but depend on the intra-ocular fluid for their nutrition. This aqueous humor is continually renewed by the transudation of fluid from the blood-vessels of the ciliary processes into the anterior part of the vitreous cavity, the amount increasing with a rise of blood-pressure in the capillaries, or a fall in intra-ocular pressure. The latter in turn is affected by the blood-pressure and by variations in the escape of the fluid through the filtration angle. If the anterior angle becomes blocked as the result of inflammatory or other changes, the intra-ocular pressure rises gradually far above normal. This may seriously affect the circulation of blood through the retinal vessels, so that atrophy of the retina is produced as well as disturbances of the nutrition of the eye.

The increased intra-ocular tension in glaucoma is well known. The changes in the chemical composition of the aqueous humor not only in local eye disturb-

1. THE JOURNAL A. M. A., May 23, 1914, p. 1671.
2. T. M. P.: Professor Theobald Smith and a New Outlook in Animal Pathology, Science, 1914, xxxix, 751.

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ances, but also because of alterations in the quality of the blood, are less evident. The involvement of the eye in systemic or constitutional diseases is not unfamiliar. In diabetes the sight is often defective, and not infrequently the detection by an oculist of a commencing or well-developed cataract or a retinitis first arouses suspicion of a possible underlying disease. To speculate extensively on the immediate effects which the aqueous humor can have on the eye structures which it bathes and nourishes is of little avail until the factors which determine the chemical composition of the intra-ocular fluid are somewhat better understood. Like the cerebrospinal fluid, with which it has frequently been compared, the aqueous humor has generally been classed as a slightly modified lymph. This simple point of view does not take into account the possibility that the intra-ocular fluid is not a mere transudate, but is dependent for certain details of its composition on the selective function of the cells through which it originates. In contrast with true lymph, the aqueous humor normally contains no leukocytes, and its content of protein is extremely low (0.025 to 0.02 per cent.). The characteristics of such a fluid resemble those of some glandular secretions rather than those of tissue lymph, and for this reason one cannot prophesy precisely what changes it may undergo in connection with alterations in the nutrition of the body as a whole.

Most of the known facts concerning the aqueous humor have been learned from analyses made on fluid obtained post mortem. Under such conditions chemical changes almost invariably have intervened. Dr. Ask[1] of the institute for medical chemistry at Lund in Sweden has lately investigated the sugar content of the aqueous humor in both man and animals, obtaining the fluid by drainage from the anterior chamber. His analyses show a close relationship between the concentration of sugar in the fluid and that in the circulating blood. Under ordinary normal conditions with a blood-sugar content of from 0.1 to 0.13 per cent., that of the aqueous humor will be from 0.12 to 0.15 per cent.; the primary fluid and that formed later show the same sugar concentration. When by experiment the content of sugar in the blood is caused to vary, the resulting hyperglycemia is accompanied by a parallel rise in the sugar content of the intra-ocular fluid. In pronounced pathologic conditions, however, when the excursions of the blood-sugar from the normal are very extensive, the content in the aqueous humor may fail to reach the blood maximum. This may be due to the slowness of the exchange between the blood and the eye-fluid, and perhaps also in part to some regulating secretory mechanism in the interior of the eye. In a case of human diabetic cataract, the sugar content and aqueous humor alike were found above normal (0.24 per cent.). Although in such conditions the intra-ocular fluid and the blood agree in composition, in other conditions, such as glaucoma or seclusio pupillae, in which enforced stagnation of the fluid in the anterior chamber exists, a diminution of its sugar content is by no means excluded. The interrelations between the composition of the blood and the fluid in the interior of the eye point to the desirability in ophthalmologic practice of recognizing the existence of hyperglycemia, especially since in diagnosis the estimation of sugar in the blood is being used in connection with the older routine examination of the urine for evidence of glycosuria.[2]

1. Ask, F.: Ueber den Zuckergehalt des Kammerwassers, Biochem. Ztschr., 1914, lix, 1; Ueber den Zucker im Humor Aqueus beim Menschen, ibid., p. 35.

HEREDITY VERSUS FOOD IN DEVELOPMENT

It has become a dictum among those most concerned with the physiologic function of the mammary gland that "breed rather than feed" determines the quality and output of milk. The food of an animal may be varied within very wide limits without altering the composition of its milk, provided that the ration is sufficient in amount. The only constituent which is known to be altered in milk by changes in the food-supply of the mother is the fat. The composition of butter may be affected somewhat by the food supplied to the cow; but normally little if any influence on the chemical make-up of the milk can be produced by wide variations in the mineral content of the food.

The question as to what extent, if any, the structure and development of the fetus can be affected by the character of the maternal diet is somewhat analogous to that which concerns the possible alterations in the milk produced by the mother. In a sense both the milk and the fetus may be regarded as produced by a specific organ; the one by the mammary gland and the other by the placenta. An idea current among cattle-raisers is that a high mineral content in the ration will cause excessive skeletal formation in the fetus and consequent difficulties at its birth. Similar views are sometimes expressed relative to the development of the human fetus. In view of the general specificity and uniformity of composition and structure exhibited by the normal products of cellular or glandular activity in the animal organism — a feature which is expressed by the fixity of species and the constancy of the products thereof — and, further, that many ingested substances fail to traverse the placenta directly, it might be expected that diet, so long as it is abundant enough, would exercise slight modifying influence on the structure of the fetus. That is, selective action on the part of the placenta with a definite control of the mineral content of the fetus might be expected, the size of the skeleton being fixed by the

2. The Variations in the Content of Sugar in the Blood, editorial, THE JOURNAL A. M. A., Jan. 10, 1914, p. 131. McLean, J. C.: The Sugar Content of the Blood and Its Clinical Significance, THE JOURNAL A. M. A., March 21, 1914, p. 917.

germ-plasm and controlled by heredity, rather than subject to the quantity of inorganic matter consumed by the mother.

It has been remarked that "assumptions in nutrition are dangerous." The questions raised in the foregoing discussion cannot well be tested by experiment on human beings; but the effect which a high lime-intake by the mother may have on the skeletal development of the fetus has been subjected to experiment in the domestic animals.[1] Since grains are deficient in calcium, farm rations made up wholly of them will not supply to growing animals a sufficient amount of this element. For this reason growing or breeding swine, fed entirely on grain, should receive an additional supply of calcium, as calcium carbonate or calcium phosphate or in leguminous hay. Any drain on the organism with consequent loss of calcium is thus averted. The new Wisconsin experiments, however, have shown that though the nutrition of the mother has a great influence on the offspring, the size is not modified by the liberal supply of any one element. Although a high calcium ration, containing over five times as much lime as the standard ration, was added to the feed of the mother during the entire period of gestation, no evidence was gained that the skeleton of the fetus was increased in any dimension or in calcium content thereby. As Hart and his co-workers remark, if size can be influenced at all by the quantitative relation of the nutrients supplied, it is clear that many factors are involved and not a single mineral element. Size is in a very large measure fixed by heredity.

1. Hart, E. B., Steenbock, H., and Fuller, J. G.: Calcium and Phosphorus Supply of Farm Feeds and Their Relation to the Animal's Requirements, Agric. Exper. Station, University of Wisconsin, Research Bull. 30, 1914, p. 21.

Current Comment

CREATININ IN THE BLOOD

With the advent of the newer accurate and rapid methods for the clinical examination of the blood, chemical statistics on this fluid are accumulating to a surprising degree. Elaborate series of data are already available concerning the sugar-content and the concentration of various types of metabolic waste-products or catabolites, such as urea, uric acid and ammonia, in both health and disease. The mention of hyperglycemia or of an increase in the percentage of nonprotein nitrogen in the blood begins to sound almost as familiar as the every-day reports of the clinical laboratory with respect to urinary findings. Somehow the problems of the composition of the blood appeal to those interested in the phenomena of abnormality as something preeminently significant. The unique rôle of the blood in the distribution of both food and waste gives an exceptional interest to the ascertained facts about it. Until very recently, owing to the lack of suitable analytic procedures, the number of creatin literature has been exceedingly small. With their usual mastery of technic, Drs. Folin and Denis[1] of the Harvard Medical School have undertaken an elaborate series of such determinations in order to learn whether in pathologic conditions there is any specific retention of creatinin similar to the specific retention of uric acid in the blood in gout.[2] No such condition could be brought to light in the examination of the blood of two hundred patients at the Massachusetts General Hospital. Ordinarily, the content of creatinin ranges from 1 to 1.5 mg. per hundred grams of blood. Except in extreme conditions of retention approaching anuria the creatinin in the blood remains at the normal level. The completeness of the creatinin excretion in man is exceeded only by the still more complete removal of ammonium salts. It is interesting to note that the figures obtained from the common domestic animals do not differ materially from those derived from analysis of human blood, except in the case of birds. The absence of creatinin from the blood of these species confirms Paton's discovery that creatinin is not a normal waste-product of birds.

1. Folin, O., and Denis, W.: On the Creatinin and Creatin Content of Blood, Jour. Biol. Chem., 1914, xvii, 487.
2. The Gout Situation, editorial, THE JOURNAL A. M. A., Sept. 20, 1913, p. 970.

MORE MEDICAL JOURNALS?

The newest venture in the domain of medical journalism, represented by the publication of the *Hamburgische medicinische Ueberseehefte*,[3] raises the old question as to the desirability of the ever-increasing numbers of such enterprises. We have long believed that specialization in this field should be encouraged only so far as existing mediums fail to provide for the suitable expression of current medical experience and discovery. Far more can be accomplished in many directions by the unifying of forces and the better utilization of existing opportunities than by the dissipation—we cannot always call it expansion—of effort. The improvement and advancement of scientific medical journalism, and thereby of the sciences and arts that it serves, is not necessarily secured by more pages in a larger number of publications, but frequently far better by a critical editorial policy which, acting for the good of a profession rather than the promotion of individuals, rejects the commonplace and untenable, and expects even the best of its contributions to conform to the highest standards of expression. Gallons of ink have been spilled in useless writing, and reams on reams of paper filled with reiterated histories, useless protocols, unprofitable controversy and preposterous trivialities—all to make so-called literature. The demands for novelties are frequently only the expression of personal ambitions rather than the crying needs of science or practice. With this preface we may proceed to the examination of the new journal emanating from the Eppendorfer Krankenhaus in Hamburg under the editorial supervision of Dr. Brauer, the director of the hospital, and Dr. Hegler of

3. A biweekly journal, i, No. 1, April, 1914, published by Fischer's med. Buchhandlung H. Kornfeld, Berlin W. 35. Subscription price, 20 marks a year.

its staff. It is issued, we are told in the introductory notice, to meet the special needs of German or German-speaking physicians who are engaged in practice in foreign lands. We are further told that the numerous existing medical periodicals, despite their admitted excellence, offer, aside from results of purely scientific value, too many contributions which have only a transitory interest or concern only the specialist and theorist. It is the same set of statements that has appeared in correspondence of THE JOURNAL from time to time in the column on Knocks and Boosts, so that this point of view will not be unfamiliar to our readers. The *Uebersechefte* are designed to act as a medium of scientific communication with those physicians who are settled on distant shores; to furnish to these colleagues authoritative accounts of the permanent acquisitions of medical science and the newest devices in practice. They are to be devoted to German progress and supported by German societies that have foreign interests. All national propagandas have a certain honorable justification. We have frequently spoken with pride of the publications of our own Bureau of Science in the Philippines. The real test of their justification for existence lies in the good accomplished; and this, in turn, depends on the intellectual pabulum supplied. The collaborators of the new enterprise are scattered from Buenos Aires to Shanghai, from Constantinople to New York, Dr. Flexner being the representative from the United States. The first number (53 pages) of the *Uebersee-hefte* opens with a theoretical discussion and classification of "diatheses" by von Behring; papers on cardiac therapy, by Brauer; emetin treatment of amebic dysentery, by Ruge; the etiology of leprosy, by Unna, etc.; the usual book reviews and a few unimportant news items. Wherein the publication is expected to meet the needs of its subscribers better than do the excellent well-known medical weeklies of Germany, remains to be demonstrated; it is not shown in the initial number.

McCLURE'S MISTAKE

On another page,[1] in reply to numerous inquiries, we have stated once more the truth regarding the scopolamin-morphin method of producing analgesia in labor and its unreliability and danger. The present effervescence of medical interest in this subject is excited by an outburst of enthusiasm concerning the treatment as applied at Freiburg, by Krönig and Gauss, published in the June issue of *McClure's*. The article appears under the signature of two women, evidently not medical authorities, and contains frequent quotations of statements credited to Krönig and Gauss. In an address delivered by Krönig before various societies when here last November, published in the May issue of *Surgery, Gynecology and Obstetrics*, statements are made almost identical with some of those in the *McClure's* article. We hesitate to believe that either Krönig or Gauss would instigate or endorse such a sensational puff for themselves, but so clear does the evidence appear that this impression is almost forced on us. If the publication was sanctioned by either or both of them it indicates an advertising initiative which bids fair to rival Friedmann. It is needless to explain to physicians that many of the statements contained in the *McClure's* article are ridiculous. As usual, not the physician, but the credulous and innocent public will be harmed by this unfortunate exploitation.

1. See Queries and Minor Notes, Scopolamin and Morphin Anesthesia, p. 1829.

GET OUT OF THE HABIT

Recently we received a manuscript from a man standing high in the profession, in which, among other things, a certain much-advertised proprietary medicine was recommended. The author was asked whether he was sure that he was getting good results from the preparation. His reply was instructive. To quote:

> While I have used this preparation for years, I must say that I have not seen results that I could attribute to it directly, and its use has become merely a habit. As it has not been accepted by the Council, I shall drop the use of it, as I am not at all convinced that it is of any value.

Unquestionably, there are thousands of physicians who, if they would, might make as honest a statement as the one quoted.

ANATOMIC MODELS

The wide-spread use of the Born method of wax-plate reconstruction in the preparation of models illustrating the form and relations of minute anatomic structures has led to the preparation of a large number, representing the most diverse types of morphologic tissue components. Heretofore it has been necessary to send these valuable original models abroad in order to secure replicas. The trouble, expense and risk of accident incurred in transporting such fragile articles as, for example, a reconstruction of the glomerulus of the kidney, in connection with conditions difficult to meet have discouraged those desirous of securing such models. The Wistar Institute of Anatomy in Philadelphia, an institution which is not only serving to promote research along broad lines of biology, but also functioning as a clearing-house in matters of scientific publication, etc., has added another to its useful activities by establishing a department for what might be called the publication of original models. The institute will receive original anatomic models, produce as many replicas as may be subscribed for and distribute them for the actual cost of production. By this means teachers and students of anatomy will be enabled to examine more of the original models resulting from research in our best laboratories. According to the *Anatomical Record*,[1] the work will be done under the personal supervision of Dr. B. Eric Dahlgren, a well-known expert of wide experience in the production of biologic models. The first replica will be made under the supervision of the author of the model. The model will be retained at the Wistar Institute as a guide in the production of others.

1. Announcement in Anat. Rec., 1914, viii, 228.

Medical News

CALIFORNIA

New Officers.—Los Angeles County Medical Association, Santa Monica Bay branch, April 6: chairman, Dr. C. P. Thomas; secretary, Dr. Byron Palmer.

Immunization of National Guard.—To perfect plans quickly to render the national guard of the state immune against small-pox and typhoid fever, a conference of medical officers was called, May 11, by Maj. Charles W. Decker, commanding field hospital No. 1, at the Armory Exposition Park, Los Angeles.

Sanitation of Camp of "Army of the Unemployed."—Dr. Hugh Beattie, health officer of Sacramento County on an inspection of the camp of the "Army of the Unmeployed," north of Sacramento, reported the conditions to be very bad and recommended the dispersal of the "army." In this he was not sustained by the state board. Sanitary Inspector Ross employed by the State Board of Health, after an investigation of the conditions, made such recommendations to the board that instructions were given to the local health officer to have the nuisance abated.

Rabies.—In March the supervisors of Sonoma County repealed the dog-muzzling ordinance which had been in force in that county since Dec. 4, 1913. The secretary of the State Board of Health immediately ordered the county quarantined under existing state laws. The order was subsequently modified to require the muzzling of dogs within those townships of the county most heavily infected with rabies. Los Gatos Canyon District of Fresno County was quarantined for rabies under Chapter 369 of the Statutes of 1913 on account of the presence of rabies in dogs, cattle and horses.

Fly-Traps Required by Ordinance.—Richmond has an anti-fly ordinance requiring that every person in charge or control of any store, market, restaurant or other place where food or foodstuffs are sold, served or dispensed, and every owner or person in charge of a public stable, shall maintain in his place of business one or more fly-traps properly baited. The size of these traps is fixed at a minimum of 500 cubic inches, and it is made the duty of the Health Department to inspect the traps from time to time to see that they are efficiently maintained. Under this ordinance the time of one man is given to baiting and attending to the traps.

Mosquitoes in California.—The secretary of the State Board of Health has requested the surgeon-general of the United States Public Health Service to take such action as might be necessary to prevent the introduction of *Stegomyia calopus* into the state. It is believed that the chief source of danger of entry of the yellow-fever mosquito is from Texas and Mexico by way of the railroad trains coming from those sections. The surgeon-general replied that the matter had been referred to Dr. Thos. R. Crowder, superintendent of sanitation of the Pullman Company, for an opinion as to the best method of handling the problem.

Personal.—Dr. and Mrs. John C. Taylor, Los Angeles, have been appointed medical missionaries to India by the synod of the reformed Presbyterian Church, and will be stationed at Patiala. They will leave for their post of duty early in September.——Mr. H. C. Moore, United States food and drug inspector, has been appointed food and drug inspector of the State Health Board without salary.——Mr. J. J. Rosenthal, Mr. Geo. L. Bell and Mr. Carlton H. Parker have been appointed inspectors for the State Health Board, and the commission of immigration and housing of California has been notified of the appointments.——Miss Violet M. Bathgate has been appointed assistant bacteriologist at the State Hygienic Laboratory, vice Miss Ethel Skolfield who has resigned.

CONNECTICUT

New Officers.—Norwich Medical Society, May 18: president, Dr. James J. Donohue; secretary-treasurer, Dr. Lester E. Walker.

Gift to Yale Medical School.—At its spring meeting, May 29, the General Education Board (Rockefeller Foundation) gave $500,000 to the Yale Medical School on condition that the school procure complete teaching and medical control of the New Haven Hospital and that the teachers in the main clinical branches be placed on the full-time or university basis.

State Society Elects.—The Connecticut State Medical Society held its one hundred and twenty-second annual meeting at New Haven, May 20-21, under the presidency of Dr. D. Chester Brown, Danbury. The following officers were elected: president, Dr. Oliver C. Smith, Hartford; vice-presidents, Dr. Stephen J. Maher, New Haven, and John B. Kent, Putnam; secretary, Dr. Marvin McR. Scarbrough, New Haven (reelected); treasurer, Dr. Joseph H. Townsend, New Haven, and delegate to the American Medical Association, Dr. D. Chester Brown, Danbury. Hartford was selected as the next place of meeting. The society endorsed the work of the State Tuberculosis Commission and of the state sanatorium for tuberculosis.

GEORGIA

Personal.—Dr. John F. Lancaster, Forsythe, has been appointed quarantine and health officer of the port of Mobile, Ala.——Dr. Benjamin S. Purse, Savannah, has been elected chief surgeon of the Army of the Tennessee.

Hospital for Tuberculosis and Pellagra.—The commissioners of Bibb County, the Bibb County Medical Society, the City Council of Macon, and the Macon Board of Health are uniting their efforts for the establishment of a special hospital for the treatment of patients suffering from tuberculosis and pellagra.

IDAHO

Personal.—Dr. Franz H. Brandt and family, Boise; Dr. Clifford M. Cline, Idaho Falls, and Dr. William F. Howard, Pocatello, sail for Europe this month.

New Officers.—Southern Idaho District Medical Society at Caldwell, April 28: president, Dr. Samuel J. Miller, Caldwell; secretary-treasurer, Dr. Robert L. Glase, Boise. The next meeting will be held at Boise in July.

ILLINOIS

Personal.—Dr. and Mrs. Harry B. Bailey, Rockford, sailed for Europe, June 3.——Dr. Effie L. Abbott, a member of the Anna State Hospital, has been transferred to a similar position at the Elgin State Hospital.

Health Talks.—The laboratory of bacteriology of the University of Illinois, Champaign-Urbana, under the direction of Assistant Professor Otto Rahn, has arranged a series of lectures on public health to be given weekly during the first semester of 1914-15.

News about Sanatoriums.—During the last year, 166 patients were treated at the Chicago-Winfield Tuberculosis Sanatorium at Winfield, at a cost of about $1.17 per day. Dr. James L. Anderson, Pittsburgh, Pa., has been elected medical director of the institution, to take office June 1.——The supervisors of La Salle County have awarded the contract for the construction of the new tuberculosis sanatorium at the county farm for $7,643.——At a meeting of the Kane County Medical Society, at Geneva, May 6, the association heartily endorsed the proposition for a Kane County Anti-Tuberculosis Sanatorium, and pledged their support. The supervisors of Kane County have already appropriated $5,000 toward the purchase price of a site for the sanatorium.

Chicago

Bust Unveiled.—A convocation of the College of Medicine of the University of Illinois will be held June 10, in honor of the unveiling of a bust of Dr. Daniel A. K. Steele.

Personal.—Dr. Frances Dickinson has been reelected president of the Artcraft Institute Guild.——Dr. Robert C. Reimche has assumed charge of the Chamberlain, S. Dak., Sanitarium.

Rush Medical Alumni to Meet.—The week of June 8-13 will be observed as "Homecoming Week" by Rush alumni. Special clinics will be held at the college and by alumni practicing in the city. The faculty will entertain the alumni with a banquet to be given June 10, at which Dr. Frank Billings will preside.

Free Ice to be Distributed to Poor.—The Consumers' Company announce that free ice certificates would be available for needy and destitute families. The offer made first for all the ice needed for the Visiting Nurse Association has been expanded to include the Infant Welfare Society, the United Charities and every other recognized charitable organization of the city, including the Volunteers of America, Salvation Army and all deserving cases reported by clergymen and physicians.

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INDIANA

Personal.—Dr. and Mrs. Charles A. Pfafflin, Indianapolis, sailed for Europe, May 30.——Dr. Thomas B. Eastman has been appointed a member of the Indianapolis Board of Health, vice Dr. Moses Thorner, resigned.

Marked Increase in Measles.—Reports of 2,628 cases of measles in Indiana were made to the State Board of Health for the month of April. Twenty-eight deaths from the disease were reported, and sixty-three counties recorded the disease as prevalent within their borders. The increase over the preceding month was alarming.

Sanatoriums Quit.—The Rockwood Sanatorium Company, which closed its tuberculosis sanatorium at Danville in June last, gave notice to the secretary of state, May 14, of its dissolution as an incorporated body.——The Plymouth Sanatorium and Hospital has been closed by order of the Board of Directors, and will be offered for sale. The building was erected in 1910 at a cost of more than $50,000. Dr. Novitas B. Aspinwall, who has been in charge of the sanatorium, will conduct a similar institution in Plymouth in connection with Miss Aura Southwick.

IOWA

Personal.—Dr. and Mrs. Bert A. Bowers and family, Granville, left for Europe, May 14.——Dr. Millard F. Pritchard announces his retirement after forty years of continuous practice in Cherokee.

Iowa Medical Women Elect.—At the annual meeting of the Iowa State Medical Women, held in Sioux City, May 14, the following officers were elected: president, Dr. Kate S. Harpel, Boone; vice-presidents, Drs. Jeanette F. Throckmorton, Chariton, and Mary K. Heard, Iowa City; secretary, Dr. Margaret Armstrong, Des Moines, and treasurer, Dr. Grace F. H. Jerger, Waterloo.

KANSAS

Personal.—Dr. John B. Dykes, Lebanon, is a candidate for Congress from the sixth district of Kansas, on the Republican ticket, and has no opponent of his party, and as the district is normally Republican, it seems probable that he will be elected.

Physicians Exonerated.—In the case of Drs. Charles E. Bowers and Thor J. Jäger, Wichita, charged with negligence in treating and operating on Mrs. Nellie Stout, Hazleton, the court held that both doctors had used their best judgment, and the jury, without leaving the jury-box, rendered a verdict for the defendants.

KENTUCKY

Personal.—Dr. W. Ed Grant has been reappointed health officer of Louisville.——Dr. Borowski has been appointed medical inspector of the Department of Health of Louisville.

University News.—Dr. Henry Enos Tuley has succeeded Dr. W. Ed Grant as dean of the medical department of the University of Louisville.——Hon. D. W. Fairleigh, president of the board of trustees of the university, has resigned and been succeeded by Hon. Arthur Y. Ford.——Dr. Virgil E. Simpson has been elected president of the alumni of the university.

Hospital Notes.—The State Board of Control has decided that a hospital for the tuberculosis patients of the Eastern Kentucky Hospital for the Insane be erected at Lexington at once. The structure will cost $300,000.——Dr. Joseph A. Stucky, Lexington, and representatives of the State Board of Health, State Anti-Tuberculosis Association, and American Red Cross, have established a clinic at Oneida for the treatment of trachoma, tuberculosis and hookworm.

State Hospital Changes.—Dr. Frank L. Peddicord, Burlington, has succeeded Dr. William E. Gardner as superintendent of the Kentucky Hospital for the Insane, Lakeland. Dr. Gardner has returned to his former home in Hardin county.——Dr. William E. Render, Brownsville, assistant physician to the Eastern Kentucky Hospital for the Insane, Lexington, has been appointed first assistant physician to the Central Kentucky Hospital for the Insane, Lakeland.——Dr. W. E. Campbell, Bowling Green, first assistant surgeon at the Hopkinsville State Hospital, has been appointed second assistant physician at the Eastern Kentucky Hospital.——Dr. H. G. Sanders, Campbellsville, has been appointed first assistant physician at the Hopkinsville State Hospital.

MARYLAND

Medical Board Reappointed.—The Police Board of Baltimore has reappointed the Board of Medical Examiners which consists of Dr. James M. Craighill, chief police physician, and Drs. Hubert C. Knapp, Thomas P. McCormick, Walter F. Sowers and Elliott H. Hutchins.

New Officers.—Montgomery County Medical Society, April 25: president, Dr. John L. Lewis, Bethesda; secretary, Dr. Claiborne H. Mannar, Rockville.——Cecil County Medical Society: president, Dr. Harry A. Cantwell, North East; secretary-treasurer, Dr. Howard Bratton, Elkton.

Personal.—Dr. Tedrow S. Keyser of the staff of the Pitts Clinic, Baltimore, has resigned to accept a position with the Neurological Institute, New York City.——Dr. Wilbur P. Stubbs has been appointed medical examiner of the schools of Baltimore, vice Dr. Richard A. Urquhart, deceased.——Dr. Arthur H. Hawkins has been appointed representative of the Cumberland Academy of Medicine on the State Board of Health.——As a result of friction which is said to have existed several months between the mayor and Health Commissioner Nathan R. Gorter, a request was made, May 18, for the resignation of Dr. Gorter, to take effect immediately. Dr. Gorter has not resigned.——Dr. Jacob Thorkelson, Baltimore, has moved to Dickenson, N. Dak., where he will be associated with Drs. Homer A. Davis, Jesse W. Bowen, and Justus Ohage, Jr.

MASSACHUSETTS

Governor Selects Heiser.—Governor Walsh has confirmed the story that he has selected Surg. Victor P. Heiser, U.S. Public Health Service for health commissioner of Massachusetts, in the event of the passage of the bill reorganizing the State Board of Health.

Typhus Fever at Granite and Quincy.—May 20, 1914, a case of typhus fever was notified at Graniteville in an immigrant arriving at Boston April 23 on the steamship *Rhaetia* from Hamburg. He was taken ill May 8. Another case from the same vessel was found at Quincy. The patient was taken ill May 3.

New Officers.—Hampshire District Medical Association at Northampton, May 15: president, Dr. Edward W. Brown; secretary, Dr. Joseph B. Collins, both of Northampton.——Franklin District Medical Society, at Greenfield, May 12: president, Dr. John E. Urquhart, Ashfield; secretary,treasurer, Dr. Halbert G. Stetson, Greenfield.

New Secretary of Faculty.—The executive committee of the trustees of Tufts College, Boston, approved the appointment of Dr. Frank E. Haskins as secretary of the medical and dental faculties in place of Dr. Frederick M. Briggs, who will retire from active service September 1, to become professor of surgery and secretary of the medical and dental faculties, emeritus.

MINNESOTA

New Officers.—Rice County Medical Association at Northfield, May 14: president, Dr. Arthur C. Rogers; secretary-treasurer, Dr. Frederick U. Davis, both of Faribault.

Personal.—Dr. Peter C. Davison, Clara City, has sailed for Europe.——Dr. H. W. Hill will assume his duties as executive secretary of the Minnesota Public Health Association, July 1.

Sanatorium Notes.—Lincoln, Lyon, Redwood, Pipestone, Murray and Cottonwood counties have agreed jointly to construct a sanatorium for patients of those counties, and they have invited Rock, Noble and Jackson counties to unite with them. The counties have already levied a tax of 0.6 of a mill, and if the other counties take similar action, the amount will be raised to $50,000. This, with the amount agreed to be paid by the state, will make the total amount available for his institution $100,000.——Union, Chippewa, Renville and Yellow Medicine counties have considered and rejected the project of a tuberculosis sanatorium at Granite Falls. The chief argument appears to be that Lac Qui Parle County should have a sanatorium of its own.——St. Lewis County is to have a tuberculosis sanatorium to cost $50,000. One half of this expense is to be met by the state.——Work on the construction of the new Goodhue County Sanatorium, near Cannon Falls, will be commenced this month. The building is to cost $20,000.

NEW YORK

New Officers.—Mount Vernon Medical Society, May 15: president, Dr. Charles Krumwiede; secretary, Dr. Frank A. M. Bryant.

Personal.—Dr. John W. Conks, Syracuse, has been appointed professor of pathology in the North Dakota State University.

Sanatorium to Open.—The Metropolitan Life Insurance Company announces the dedication of its tuberculosis sanatorium for employees at Mt. McGregor, Saratoga County, June 20, at noon.

Antitoxin Farm.—The Hungerford Farm, Guilderland, has been sold to the state for $9,500, and the state will establish a farm for antitoxin and hygienic laboratories, which have been maintained in Albany for several years.

New Clinic Established.—Physicians of Southold and Shelter Island have organized a clinic which is to meet regularly at the Eastern Long Island Hospital, Greenport. ——The physicians of Patchogue are about to open a free dispensary.

Communicable Diseases.—The number of cases of scarlet fever in the Auburn prisons has reached nearly 80, most of the sufferers being in the women's prison. The prison staff of four physicians has received additional help from the State Health Department. It is said that the cases are all mild.——There is an epidemic of measles at Princes Bay, Borough of Richmond. In the neighborhood of 100 cases have been reported.

Child Welfare Campaign Exhibit.—An extensive campaign for the reduction of infant mortality in the state by means of lectures, literature and other forms of education and publicity has been inaugurated by the State Department of Health and itineraries for three exhibits are being prepared. They are planned not only to be instructive to mothers but to demonstrate the necessity and value of the visiting nurse, infant welfare stations, and other welfare work. A series of public meetings will be arranged for each city visited, and it is hoped that permanent welfare work will be organized in every city visited by the exhibits. In connection with this campaign a copy of the department's booklet on "How to Save the Babies" is being mailed to every mother in the rural districts of the state on the receipt of the birth certificate of her child.

Report of Vital Statistics.—A warning has been issued to physicians and registrars throughout the State in regard to reporting vital statistics. It is the purpose of the department to use to its full extent the authority with which it is vested to secure obedience to the provisions of the law in relation to vital statistics. The following is the notice:

To Physicians: The attention of all physicians is called to the provisions of the said law.

Every physician in attendance upon a birth must, within five days after such birth, file with the local registrar a certificate thereof on the prescribed form. Every medical certificate of death must be made out by the physician, last in attendance, in the form and manner prescribed. Every physician, who has not already done so, must register immediately with the local registrar.

All births which have not been reported within the period prescribed by law may be registered with the State Department of Health up to May 30 without penalty. After that date, it is the purpose of the Department of Health to take such legal action as seems necessary to secure full registration of all births occurring in this State, and to enforce the penalties prescribed by law.

Health News.—This is the title under which the State Department of Health has issued its last *Bulletin* and the first one for which Dr. Hermann M. Biggs, state commissioner of health, is entirely responsible. It is called the "Principal's Number" and is devoted to health work as it applies to the school, and to pointing out the function of the school in public health education. In his letter to the principals of the state Dr. Biggs states that it will be the purpose of the department so to prepare the *Monthly Bulletin* that it will be of special service to the school principals throughout the state as well as to the local health officers and other health workers for whom it is particularly designed. It will be the aim of the editor to include in each number material which is timely and important for children to know. This will be summarized under the heading "School Health Lessons." Dr. Biggs asks the principals to see that the gist of this monthly lesson shall be read and explained to the children either by the principal or by some teacher appointed by the principal at a designated assembly when both teachers and pupils are present.

New York City

Illegal Sale of Hypodermic Needles.—During the past week four druggists have been arrested and held on the charge of having sold hypodermic needles to persons other than physicians and without the prescription of a physician.

New Officers.—Flatbush Medical Society at Brighton Beach Casino, May 8: president, Dr. Walter D. Ludlum; secretary, Dr. Stanley B. Thomas, both of Brooklyn.——Valentine Mott Society, New York City: president, Dr. Emil Heuel; secretary-treasurer, Dr. Joseph E. Lumbard.

Movies Teach Health Work.—The Motion Picture Exhibitor's Association of Greater New York has offered the Health Department the services of more than 800 moving picture theaters for the educational work of the Department. The start was made on May 16 when hundreds of theaters displayed slides calling attention to the "Clean-up" campaign inaugurated by Commissioner Goldwater. This will be followed by announcements concerning flies, typhoid fever, care of babies, etc.

Death Certificates in New York City.—During 1913 almost 65,000 certified copies of death certificates were issued by the Department of Health, as set forth in the *Weekly Bulletin* May 23. It is said that fully 80 per cent. of these were used in obtaining funds to bury the deceased person. The savings banks require them before money for burial purposes will be paid from the accounts of deceased depositors, many transcripts are required on account of the collection of insurance policies, the probate of wills in this and foreign countries, etc. Certificates sent abroad must be vised by the consul representing that country.

Hospitals and Isolation Wards.—In view of the fact that the Sanitary Code requires every public hospital and dispensary in the city of New York to provide and maintain a suitable room or rooms for the temporary isolation of persons suffering from infectious diseases, a survey of the hospitals and dispensaries of the city has revealed the fact that a considerable number of institutions have failed to comply with this requisition. It was discovered that 11 small hospitals and 39 dispensaries make no provisions for isolation. The department has appealed to the managers and the medical staffs of these institutions urging that they make an earnest effort promptly to meet the requirements.

Insurance Companies Cooperate with Health Department in Public Health Education.—In carrying on an extensive health campaign, the Department of Health has frequently found it difficult to reach large numbers of people quickly. After a conference with the representatives of the Metropolitan and Prudential Life Insurance companies, these companies have placed the services of their agents at the disposal of the Department of Health for the distribution of public-health literature. This means approximately 3,000 agents visiting the homes of 750,000 families weekly. The department seeks further cooperation along these lines and will be pleased to hear from organizations which are prepared to contribute assistance.

Personal.—Dr. Mark J. Schoenberg has been awarded, by the New York State Medical Society the Lucien Howe prize for his research work on ocular anaphylaxis.——Dr. Jacques Loeb of the Rockefeller Institute for Medical Research, has been elected correspondent of the French Academy of Science, in the section of anatomy and zoology, to succeed the late Lord Avebury.——Dr. Smith Ely Jelliffe has been elected a corresponding member of the Paris Neurologic Society.——Dr. Charles Bolduan has been appointed head of the new Bureau of Public Health Education of the Department of Health.——Dr. S. Adolphus Knopf gave the opening clinic, on June 2, for a postgraduate course to be inaugurated by the Bruchesi Tuberculosis Institute, Montreal.

Cancer as a Public Health Problem.—The *Monthly Bulletin* of the Department of Health of the city of New York is devoted to information concerning cancer. Curtis E. Lakeman, executive secretary of the American Society for the Control of Cancer, gives a statement of the cancer problem as it is at present understood, together with information and warnings to the public for the control of this increasing, fatal disease. Some statistics are given which show that the mortality from cancer in the registration area of the United States per 100,000 population increased from sixty-three in 1900 to seventy-seven in 1912. In New York State the rate has increased from forty-three for the three-year period 1887-1889 to eighty-six for the period 1911-1913. Warning is given against radium fakes and other fake cancer cures.

Administrative Control of Whooping-Cough.—A plan for the supervision and treatment of whooping-cough has been developed by the Department of Health. A survey has recently been completed of the institutions, hospitals and dispensaries of the city, with a view to determining what institutions treat whooping-cough at the present time, what institutions desire to maintain whooping-cough clinics, and what facilities they possess for dealing with this disease. All together 116

institutions were visited; of these 78 reported that they had no patients with whooping-cough applying for treatment; only five have a district physician caring for whooping-cough cases in their homes; 67 institutions admitted that their physicians did not report all cases of whooping-cough to the Department of Health, and only four institutions maintained and supported classes for treating cases of whooping-cough on the premises. Three of these were hospitals and one a dispensary. The investigation shows why whooping-cough is so prevalent in this city and why it has failed of administrative control. The department will take up the question with the Associated Out-Patient Clinics and the hospitals, and it is hoped that before long adequate facilities for the care of patients suffering from whooping-cough will be provided.

OHIO

New Officers.—Ferry County Medical Society reorganized at Lexington, April 29: president, Dr. Calvin B. Holcomb, Corning; secretary-treasurer, Dr. Robert W. Miller, Hemlock.

Personal.—Dr. Walter E. Obetz, Columbus, has been appointed assistant epidemiologist of the staff of the Ohio State Board of Health.——Dr. George Goodhue, Dayton, who was operated on, May 12, at Rochester, Minn., for intestinal ulcer, is reported to be doing well.——Dr. William H. Buechner, Youngstown, was given a dinner in honor of his fiftieth birthday anniversary by members of the medical profession and others, May 23.——Dr. and Mrs. Charles U. Hanna, Zanesville, sailed for Europe June 4.——Dr. and Mrs. Charles M. Neldon, Coshocton, will sail for Europe June 12.

To Promote Medical and Dental Supervision of Schoolchildren.—Dr. Porter B. Brockway, Toledo, recently elected president of an organization for the promotion of medical and dental supervision of children in rural as well as in city schools, announces the following committee for cooperation with the superintendent of the public schools: Dr. William H. Peters, health officer of Cincinnati; Dr. Erwin A. Peterson, chief medical inspector, Cleveland; Dr. Herbert M. Platter, Columbus; Dr. Eugene F. McCampbell, Columbus, secretary, State Board of Health, and Dr. F. R. Chapman, Columbus, secretary of the Ohio State Dental Society.

Cincinnati

Hospital Staff Election.—At the annual meeting of the staff of the Cincinnati Hospital, May 28, the following officers were elected: president, Dr. Benjamin K. Rachford; vice-president, Dr. Robert Carothers; secretary, Dr. Meyer L. Heidingsfeld; and treasurer, Dr. Edwin W. Mitchell.

Alumni Meeting.—The Alumni Association of the Ohio-Miami Medical College has arranged an elaborate clinical program, beginning June 10. On this day, Dr. William E. Haggard, Nashville, Tenn., will hold a clinic on surgery, and Dr. Christian R. Holmes, Cincinnati, one on otology. On June 11, Dr. Wendell C. Phillips, New York City, will lecture on the "Conservation of the Hearing Function," with illustrative cases, and Dr. George A. Fackler will conduct a clinic on internal medicine. In the evening, the annual banquet of the association will be held. On June 12, Dr. Richard C. Cabot, Boston, will conduct a medical clinic, and Dr. Joseph Ransohoff, Cincinnati, one on surgery. All of these clinics will be held in the morning, and at the Cincinnati General Hospital. The afternoons will be devoted to clinics at the various local hospitals. The commencement exercises will be held on the morning of June 13 at the gymnasium of the university.

PENNSYLVANIA

Health Board Superseded.—The Chester Board of Health was abolished May 18, and the authority of the board transferred to the Department of Public Safety.

Gift to School Library.—The Phi Beta Pi Fraternity has presented the library of the School of Medicine of the University of Pittsburgh forty-five bound volumes of THE JOURNAL of the American Medical Association.

Quarantine Hospital Inadequate.—The State Economy and Efficiency Commission has inspected the Quarantine Hospital at Marcus Hook, and report it inadequate to meet the demands of the increased immigration at this point.

College of Physicians' Banquet.—The annual banquet of the College of Physicians of Pittsburgh was held at the Fort Pitt Hotel, May 27. The guests of honor were Dr. Noble W. Jones, Portland, Ore., who spoke on "Principles Underlying the Medical Treatment of Gastro-Intestinal Stasis"; Dr. Willia Garry Morgan, Washington, D. C., and Dr. John P. Sawyer, Cleveland, Ohio.

To Train Medical Missionaries.—The Pennsylvania Medical Missionary Society is now entering on the last year of its first quarter century. The objects of the society are to give assistance to students preparing for medical missionary work, and to arouse interest in medical missions; to establish and maintain homes for the use of missionaries or of students preparing for this work, and to obtain systematic contributions of money for these objects. The new Rest Home for missionaries at home on furlough, at Ventnor, was opened this month. The society is interdenominational in all its endeavors.

Philadelphia

Memoir to Dr George MacClellan.—A memoir of the late Dr. George MacClellan, founder of the Pennsylvania School of Anatomy and professor of artistic anatomy at the Academy of Fine Arts, was read May 28, at the meeting of the philobiblion Club, by Dr. J. Chalmers DaCosta.

Lebanon Hospital Opened.—The new Lebanon Hospital at 1728 N. Seventh St., was formally opened June 1. The new building has a capacity of thirty beds and has a well-equipped laboratory for microscopic and chemical examinations. The nurses' training school will be installed as well as a staff of six nurses.

Memorial Meeting for Dr. Moon.—A tribute to the late Dr. Robert C. Moon was paid, May 23, by an audience of largely sightless people, who crowded Witherspoon Hall. The father of the recently deceased physician had invented the Moon type system of reading for the blind and the son, an able ophthalmologist of Philadelphia, had also largely devoted his best energies to relieve these sufferers.

Personal.—Dr. James M. Anders has been appointed by Mayor Blankenburg, a member of the Board of Health to succeed Dr. Walter H. Andrus, who resigned several months ago.——Dr. S. W. Newmayer, head of the division of child hygiene, has been appointed assistant chief medical inspector in the Bureau of Health, to succeed Dr. Charles A. Groff, resigned.——Dr. Edward A. Leonard, Jr., has qualified for the position of assistant chief resident physician of the Bureau of Charities.

Plans Relief for Blockley.—To relieve overcrowding at Blockley, Director of Health and Charities Harte proposes to use at once a portion of the $60,000 available for a power plant in the new Home for the Indigent, at Holmesburg, in such a manner as to open the institution at an early date. With the installation of a temporary plant and the expenditure of possibly $15,000 on beds and other furnishings, 1,000 men from Blockley can be transferred to the new institution.

Agreement on Bodies.—The controversy between the coroner's office and the State Anatomical Board over the disposition of unclaimed bodies has been tentatively settled by an agreement to take the affair to court and abide by the decision. A test case will be made of the first unclaimed body that comes to the department. The state board made a concession in the case of bodies on which post-mortem examinations have been made, for in the past the board has refused to accept them.

Demonstration by State Board of Health.—The meeting of the Philadelphia County Medical Society on May 27 was devoted to an exposition of the work of the State Department of Health. Beginning at noon, there was an exhibit in Cadwalader Hall of relief maps, models and charts of the work of the department. Demonstrators were in attendance, and literature regarding the subjects was presented to each visitor. In the evening the topic announced was "An Evening by the Department of Health, Commonwealth of Pennsylvania." Dr. Samuel G. Dixon, state health officer, delivered an address, and others spoke on "Vital Statistics," "Medical Division," "County Medical Work," "Typhoid Fever," "Engineering Division," "Laboratories," "Dispensaries," "Sanatoria," "Philanthropic Cooperation in State Tuberculosis Work" and "Experiences as an Intern in a State Tuberculosis Camp."

For an Effective Housing Bureau.—Under the supreme court decree in the housing and sanitation suit that a new division of the Department of Health and Charities could be established only by the will of the councils irrespective of the act of assembly authorizing it, Dr. Richard H. Harte, director of health and charities, on May 25, reinstated the three heads of the old divisions deposed by Assistant Director Wilson several months ago. The men reinstated were the head of the division of sanitary inspection, head of the divi-

sion of house drainage and head of the division of tenement house inspection. Dr. Harte has announced his determination to cooperate with councils in making the new division of housing and sanitation of the Department of Health and Charities, a most effective branch of the city government, and he will endeavor to prevail on councils to authorize the establishment of this new division and if councils are not willing to provide money for all the hundred inspectors authorized by the act of assembly, the department will do its best with the members of inspection the councils shall allow.

SOUTH DAKOTA

Personal.—Dr. Burtis T. Green, Brookings, sails for Europe June 13.

New Officers for State Association.—At the thirty-third annual meeting of the South Dakota State Medical Association held at Watertown, May 26-28, the following officers were elected for the ensuing year: president, Dr. Fred Treon, Chamberlain; vice-presidents, Drs. James B. Vaughan, Castlewood, and Francis M. Crain, Redfield; secretary-treasurer, Dr. Robert D. Alway, Aberdeen; delegate to American Medical Association, Dr. Edmund D. Putnam, Sioux Falls; alternate, Dr. Silas M. Hohf, Yankton. Sioux Falls was selected as the place of the next meeting.

WASHINGTON

Personal.—Dr. Irving Conditt, city physician of Seattle, has been appointed surgeon of the U. S. S. *McArthur*, engaged in coast and geodetic survey.

Rat-Proofing Ordinance.—The city council of Seattle has approved an ordinance, effective May 24, 1914, requiring the rat-proofing of all new buildings and buildings undergoing extensive repairs. The enforcement of the ordinance primarily devolves on the superintendent of buildings who will work in cooperation with the U. S. Public Health Service. Under date of May 26 the finding of a plague-infected rat was reported from Seattle.

GENERAL

Correction.—Dr. R. G. Hoskins calls attention to the fact that there is an inaccuracy in a statement made in his article, page 1803 of this issue, and that the statement beginning "Weed of Johns Hopkins has recently," etc., together with the reference should be deleted.

Military Surgeons Meeting.—The Association of Military Surgeons of the United States will hold its twenty-third annual meeting in Cincinnati, September 29-30 and October 1-2. Brigadier General Charles Adams, M. C., Ill. N. G. (retired), Chicago, is president of the association, and Dr. Charles A. Lee Reed, Cincinnati, is chairman of the committee on arrangements.

Bacteriological Standards for Milk.—*Public Health Reports*, May 15, contains a partial list of cities and towns in the United States of 10,000 population and over which have adopted a bacteriologic standard of purity for milk and cream. The total population of the cities included in the table given in the report is 21,043,325. The maximum number of bacteria allowed per cubic centimeter ranges from 1,500,000 for cream and 1,000,000 for raw milk, down to 10,000.

Gynecologists Elect Officers.—At the thirty-ninth annual meeting of the American Gynecological Society, held at Boston, May 19-21, the following officers were elected: president, Dr. Thomas J. Watkins, Chicago; vice-presidents, Drs. Frank F. Simpson, Pittsburgh, and Howard C. Taylor, New York City; secretary, Dr. Leroy Broun, New York City (reelected), and treasurer, Dr. J. Wesley Bovee, Washington, D. C. The place of meeting for next year was not decided.

American Pediatric Society Election.—At its twenty-sixth annual meeting held in Stockbridge, Mass., May 25-27, the following officers were elected: president, Dr. George N. Acker, Washington, D. C.; vice-president, Dr. Henry L. Coit, Newark, N. J.; secretary, Dr. Samuel S. Adams, Washington, D. C. (reelected); treasurer, Dr. Charles H. Dunn, Boston, Mass. (reelected); delegate to the Association of American Physicians, Dr. Abraham Jacobi, New York. The next meeting will be held in Cape May, May 25-27, 1915.

German Neurologist in America. — Professor Otfrid Foerster, neurologist of Breslau, Germany, is now visiting the United States. He was a guest of several Chicago physicians during the week of May 23-30, and has now gone to the Rocky Mountain states. Professor Foerster will speak in the Section on Nervous and Mental Diseases of the American Medical Association in Atlantic City, June 24, his subject being "The Borders of the Areas of Anesthesia, Analgesia and Thermo-Anesthesia in Lesions at the Different Levels of the Sensory Tract."

Physicians' Study Travels.—The first annual tour of the American Society of Physicians' Study Travels includes the cities and health resorts in and between Philadelphia, Canada and New England. The number is limited to 125 persons, and the tour will start from Philadelphia, June 26, immediately after the meeting of the American Medical Association in Atlantic City, and will return to Philadelphia July 16. The expense per individual, including all charges en route, will be $180. Those interested should communicate with the secretary, Dr. Albert Bernheim, 1225 Spruce Street, Philadelphia.

FOREIGN

Leprosy in Norway.—According to a table in Public Health Reports, May 29, from 1906 to 1910 the number of deaths from leprosy in Norway was 211. Of these 128 were males and 83 females. At the end of 1910 there were in that country 323 persons suffering from the disease, of whom 137 were males and 186 females.

Physicians in China.—In the part of China around the Shansi Mission of the American Board of Commissioners for Foreign Missions, there is a territory with only seven physicians to fourteen million people. There are many out-stations where patients are cared for, and several opium refuges are governed from Fenchow-fu. The board is continually calling for young physicians, but the response to the service has not been what it deserves.

Deaths in the Profession Abroad.—P. H. Eijkman, Scheveningen, the Netherlands, aged 51. Indefatigable in his efforts to promote international scientific intercourse, he founded in 1910 at the Hague the *Bureau préliminaire de la fondation pour l'internationalisme*. It listed then 192 different international organizations for medicine or the natural sciences.——I. Wickman, instructor in nervous diseases at the University of Stockholm and an early authority on poliomyelitis, aged 37.——D. Biondi, professor of surgery at the University of Siena.

Responsibility for Outer Garments Left in Waiting-Room.—The supreme court at Rome, Italy, recently decided a case on appeal in favor of a physician who was sued for damages as a patient's overcoat, left in the anteroom, had been stolen while he was with the doctor. The latter proved that the outer door was always locked and an attendant kept to open the door. He was considered to have thus acted "like a father" and the plaintiff's claim was not allowed. The judge emphasized that the responsibility of the physician in respect to office patients is not like that of a hotel-keeper for the belongings of his guests. The physician is responsible only *en bon père de famillie* for the outer garments, umbrellas and canes left in the anteroom to the office, and this responsibility does not extend to traveling bags. The *Semaine Médicale* in commenting on this case compares the codes of various countries, all sustaining the equity of the decision.

CANADA

Budget for Health Department.—The health committee of Winnipeg has asked an appropriation of $306,561.95 for the fiscal year. The chief items are for scavenger service, $140,064.40; salaries, $70,910.40; and operating and maintaining crematories, $67,627.15.

New Officers.—Toronto Academy of Medicine, May 5: president, Dr. Harry B. Anderson; secretary, Dr. Jabez H. Elliot.——Ontario Health Convention in Toronto, May 8: president, Dr. William R. Hall, Chatham; vice-president, Dr. Angus W. McPherson, Peterborough.

Provincial Association Meeting.—At the thirty-fourth annual meeting of the Ontario Medical Association, held in Toronto, the expected divulsion of the provincial from affiliation with the Canadian Medical Association was sidetracked, the matter being referred to a special committee of nine, including two who favored withdrawal, two who were satisfied with present conditions, and five members supposedly disinterested. The address in surgery was delivered by Dr. John M. T. Finney, Baltimore, on "The Cause of Failure in Operations for Choleliathisis"; that in obstetrics by Prof. B. P. Watson, Toronto, who gave a historical review of "Forceps, Their Proper Use, Etc."; and that in medicine by Dr. Emanuel Libman, New York City, on "Subacute Bacterial Endocarditis." The following officers were elected; president, Dr. David J. Gibb Wishart, Toronto; first vice-president, Dr. Adam T. Shillington, Ottawa; secretary, Dr.

Frederick A. Clarkson, Toronto, reelected; and treasurer, Dr. Jabez H. Elliott, Toronto, reelected.

CANAL ZONE

Treatment of Employees.—Circular 618, dated April 1, governs the treatment of employees in hospital and elsewhere. Employees will receive free treatment in the hospitals in case of injury or disease other than alcoholism or venereal disease. They will be admitted only on request of a physician of the health department or the head of a department or division to which the employee belongs. A charge of $1 for each visit will be made by each physician of the health department to an employee at his home or quarters, except that no charge will be made for the first visit if the employee is unable to go to the hospital or dispensary. Employees living with their families may be treated free at home or in quarters if, in the opinion of the physician, they cannot go to the dispensary or hospital. Employees treated in special wards shall be charged $1 a day and for a private room shall be charged $1.50 per day. Special nurses will be charged for at the rate of $3 per day and a special servant at $1. Members of the families of employees may consult free of charge any physician of the health department at the hospital or dispensary. Other regulations in regard to charges in hospital for employees on different rates of pay, for Army, Navy and marine services, for the diplomatic and consular corps and for the employees of contractors are also contained in the circular.

LONDON LETTER

LONDON, May 22, 1914.

Deaths Due to Salvarsan

Although it is possible to administer salvarsan in a large number of cases without any ill results being observed, the occurrence of fatalities from time to time proves the truth of the saying of the leading French syphilographer, Gaucher, that it is "a treacherous remedy." All the explanations, brought forward one after another with no little ingenuity by Ehrlich and his followers, have broken down, and after much resistance the fact has to be admitted that under circumstances which are not understood, salvarsan may produce the nervous form of arsenical poisoning with fatal result. The contention that fatalities were due either to errors of technic or to administration in cases in which the drug was contraindicated by organic disease of the nervous or vascular system has been abundantly disproved. Most of the fatalities have occurred in young and vigorous patients, who, except for syphilis, were quite healthy. In England the number of reported deaths is small, but as in other countries, many are never published. A short time ago a man in Bradford suffering from anthrax was injected and died, as was admitted at the inquest, from arsenical poisoning. Two other deaths have recently been reported. In one a debilitated man aged 25, a subject of syphilitic ulceration of the palate and larynx, was treated in Dublin. The heart and kidneys were apparently normal. An intravenous injection of 0.4 gm. of salvarsan was followed by two rigors and vomiting. After recovering from these symptoms he collapsed and died twenty-five hours after the injection. At the necropsy the heart and kidneys were found normal. In the other case, a young man, aged 23, in the secondary stage of syphilis and otherwise apparently healthy, received an intravenous injection of 0.6 gm. at St. Mary's Hospital and the same dose a fortnight later at Guy's Hospital. Three days after the second injection coma and convulsions occurred and the patient died. The necropsy showed visceral hemorrhages and hyperemia of the brain. The heart, liver and kidneys were normal. At the inquest Dr. Womack, the pathologist, gave evidence that death was due to acute arsenical poisoning in a person with idiosyncrasy to salvarsan. He referred to the case of an American who died in London after a second injection under similar circumstances. Another case of the same kind has occurred in Manchester. Ehrlich's attention having been called to the fatality at Guy's Hospital, he wrote a letter to the *British Medical Journal* stating that he associates the nervous phenomena after salvarsan injection, particularly hemorrhagic encephalitis, with the destruction of spirochetes in the capillaries of the brain and the liberation of the endotoxins. The vascular system, altered by the endotoxins, is not oversensitive to salvarsan as such, for otherwise the symptoms would appear immediately after the second injection instead of two days later. The delay indicates that a derivative of salvarsan has come into action which he believes is an oxidation product. A third factor which also comes into play is a deficiency of epinephrin, favoring dilatation of vessels. He therefore suggests that epinephrin may be of use in overcoming "this scourge of salvarsan therapy." To this complicated explanation the reply may be made that it is almost entirely hypothetic and not sustained by evidence. Moreover, if it be true that salvarsan causes a dangerous liberation of endotoxin, this is surely an argument against its use. But that the symptoms are due to arsenical poisoning, pure and simple, is shown by their occurrence when salvarsan is administered in other diseases than syphilis and by their occurrence in patients who, having suffered from the disease and free from all manifestation of it, have shown toxic symptoms after injections administered as a precautionary measure. The profession seems to be so hypnotized by the well-earned reputation of a great pathologist as to be incapable of grasping the obvious with regard to these salvarsan fatalities.

PARIS LETTER

PARIS, May 15, 1914.

Personal

May 12, the Académie de médecine elected two national associate members, Dr. Jules Boeckel of Strassburg and Dr. Albert Calmette of Lille (THE JOURNAL, May 2, 1914, p. 1414). Mention of Dr. Jules Boeckel was made recently on the occasion of his departure from the civil hospital of Strassburg and his nomination as honorary member of the Société de chirurgie de Paris. Dr. Albert Calmette, who was born at Nice in 1863, when colonial and marine physician in 1890, founded at Saigon the first Pasteur institute outside of France. After his return to France, he became one of the most valued pupils of Pasteur, who in 1895 entrusted him with the task of organizing the institute of Lille, which he continues to direct. He has particularly studied the problems of plague and snake-poison serotherapy. He has given particular attention to the study of tuberculosis and has introduced antituberculosis dispensaries, which are generally preferred in France to tuberculosis sanatoriums.

Has a Military Officer the Right to Operate?

The very important question of unauthorized practice of surgery by military officers is now receiving the attention of the medical profession. In some of the frontier military posts of our colonies, there are no military physicians. The heads of such posts have been instructed by physicians in the elements of hygiene and medicine but not in surgery. In serious cases, sick or wounded men have been transported with all possible care to the nearest military infirmary or hospital. This prudent caution was not observed in a recent case. Dr. Granjux reports that in a post of southern Algeria, an officer amputated the leg of a seriously wounded brigadier. The fact was reported to the minister of war, who sent to the commander of the army corps a letter of congratulations in which he requested him to invite the director of the service of hygiene to prepare for the use of the southern posts a notice pointing out the superiority of conservative surgery and the means of practicing it even under unfavorable circumstances, thereby permitting the patient to await the arrival of a physician and avoid amputation. Dr. Granjux points out the great danger of such operations made by officers who have the best intentions, but necessarily lack the requisite skill, and observes that the minister of war, while ostensibly congratulating the amateur surgeon, conveys an implied reproof which is not made direct for fear of making trouble for him and for the government.

Nurses and Antityphoid Vaccination

An odd conflict has just arisen between the administration of the Public Charities and the nurses. The Public Charities has recently decided to vaccinate its nurses with the serums of Vincent or Chantemesse. The nurses' union (*syndicat*) has protested against the use of these serums, which it says have killed several nurses. The *syndicat* declares that the serum caused the death of two female nurses, one at the Beaujon Hospital and the other at the Necker Hospital, and that two other female nurses, one at the Lariboisière and the other at the Charité, have been made seriously ill. M. Mesureur, director of the Public Charities, replies that the deaths attributed to the antityphoid serum are really not due to the vaccination. The nurse at the Beaujon Hospital had received two inoculations and was not protected. She died of typhoid fever, which broke out a month after the last inoculation. The nurse at the Necker Hospital died also of typhoid fever, during the course of which three therapeutic injections had been made. The case, therefore, has no bearing on preventive vaccination.

BERLIN LETTER

BERLIN, May 15, 1914

Annual Meeting of the German Surgical Society

(*Continued from page 1674*)

THYROID TRANSPLANTATION

Kocher of Bern reported the permanent results of thyroid transplantation in man. In animal experiments it was possible to transplant the thyroid gland and its vessels, but only in case of autotransplantation, which is of no significance for the present question. No success has hitherto been obtained by means of homotransplantation. Probably the question also will be solved by some method of weakening the immunity of the recipient and increasing the vigor of the transplant. For the prevention of tetany, when it was not possible at the operation to preserve the epithelial bodies, Kocher immediately reimplanted these. Also for the prevention of cachexia strumipriva, when for any reason the entire thyroid had to be removed, he reimplanted a portion of the healthy tissue. In cases of cretinism, in which the patient's own thyroid is not available, the attempt must be made, if necessary, to obtain material from relatives. The successful cases which Kocher has to show have not been controlled by histologic examination because he does not regard himself as justified in removing again a gland that has once been implanted.

He plants the graft in the bone-marrow, the peritoneal cavity, the preperitoneal tissue, the omentum or, following the method of Payr, in the spleen, which seems to him especially suitable for the purpose. In ninety-three cases he had eighteen favorable results; some of the patients had previously been taking thyroid preparations internally. It should be noted further that there are cases in which these preparations are tolerated only after a thyroid-grafting operation. In cases of cretinism, he had good results in twenty-one cases. For transplantation, he prefers the thyroid from a patient with exophthalmic goiter which is in the stage of hyperthyroidism. For good results, a single transplantation is not sufficient; new material must constantly be supplied either by the administration of thyroid preparations or by multiple transplantations. In cretins, moreover, preliminary long-continued administration of the thyroid is necessary for success with the transplantation.

Eiselsberg of Vienna reported a case of myxedema in which an improvement was secured by repeated transplantation; but after a certain interval a new transplantation always became necessary. He has succeeded in transplanting the epithelial bodies but with only a temporary effect.

In a case of congenital lack of the thyroid, with complete idiocy, which Payr of Leipsic reported, an astonishing and unprecedented improvement lasting for two years and four months was achieved by transplanting a large piece of the mother's thyroid; but later a complete retrogression occurred. Three other transplantations gave satisfactory results. Payr said that in cases of acquired imperfect function of the thyroid, after failure of thyroid treatment, transplantation may be undertaken with good prospects of success. The causes for failure of transplantation in congenital cretins are partly the severe disturbances of development in the infantile brain which are present at the same time and partly the necessity of taking the graft from another individual. For an early diagnosis, Payr recommends a small exploratory incision in the neck. In this place, then, the transplant itself may be inserted or it may be embedded in the capsule of the thymus. There are many differences between the mode of action of transplanted thyroid tissue and thyroid treatment with the dried gland.

Stieda reported three cases of pronounced myxedema with more or less evident idiocy, in an 8-year-old boy, his sister of 7 and an 8-year-old girl. After the implantation of thyroid tissue, a pronounced improvement was evident in all three cases. At first it showed rapid progress and then became stationary. A disappearance of the myxedematous changes in the skin could be demonstrated as well as a growth in height and an evident increase in intelligence. Two of the children are still under observation, but the third died nearly four years later, after an operation for tuberculosis. At the necropsy this case, which had been especially improved, showed that microscopically the thyroid tissue implanted in the head of the tibia was no longer recognizable but, on the other hand, a small thyroid gland was found which had escaped discovery during life. Aside from the grafting operation, the children received no other treatment.

Schaack of St. Petersburg has repeatedly undertaken the implantation of the thyroid in the bone-marrow or in the subcutaneous adipose tissue and has seen improvement which, as a rule, however, lasted only two months. He has never observed a permanent cure.

Müller of Rostock implanted the thyroid in the bone-marrow of the tibia in one cretin, with merely temporary improvement. He later opened up the tibia again but found nothing left of the thyroid gland except a few isolated cells.

Enderlen of Wurzburg stated his conviction based on wide experience that the thyroid implanted in this way will not long maintain its life.

THYROID CYSTS

Riedel of Jena reported on the dangers and disturbances from cysts of the thyroid. Of 1,070 patients with goiter who were operated on, 148 had large isolated cysts. The latter often develop even in childhood and sometimes hinder the growth of the trachea to a remarkable degree (11 cases), and relatively often sink down behind the first rib or the sternum (21 cases). Exophthalmic goiter seldom occurs in a thyroid with cysts (6 cases); hyperthyroidism is more frequent (12 cases). If such patients are operated on under general anesthesia, the pulse in some instances sinks to the normal and remains thereafter slow; in others it becomes rapid again after subsidence of the anesthesia and the same symptom is seen in solid goiter with exophthalmic goiter.

In these cases there is a paralysis of the subcortical center of the sympathetic in the subthalamic region which, in turn, has relations with the posterior part of the frontal lobe of the brain. This center, that in exophthalmic goiter or in hyperthyroidism is primarily or secondarily stimulated, is paralyzed by chloroform. The primary factor of exophthalmic goiter, however, is often the disease of the thyroid shown by the morbid anatomy. If the greater part of the thyroid is removed by an early operation, the exophthalmic goiter also rapidly disappears. If the thyroid grows again, the exophthalmic goiter immediately returns, but it disappears again as soon as the newly grown thyroid is removed, even if it is only very small, for it requires the influx of only a minute amount of the juice of the thyroid into the blood to stimulate the sympathetic center. In chronic cases this center remains irritated for a long time, even for years, in spite of the removal of the greater part of the goiter or the thyroid cysts.

Effusions of blood easily occur into thyroid cysts, and still more frequently inflammatory changes occur (mostly circumscribed and harmless). Of three women with subacute attacks, two died of pericarditis or endocarditis, and one of pneumonia, although pus was found in the cysts in only one of the cases and serum in two. In one patient the inflamed cyst was probably tuberculous. Malignant degeneration of the cysts is very unfortunate. In two cases, carcinoma of the esophagus developed opposite old, hard, calcified substernal cysts, so that a causal connection between the two must be considered. Tough-walled cysts, permit easy enucleation; sometimes a severe hemorrhage from the thyroid tissue, especially from the capsule, necessitates the almost complete removal of that half of the goiter. For the extirpation of the subcostal cysts, a long curved incision is necessary; the goiter separated at the isthmus must be loosened from the trachea and also higher up and so made movable, and then the subcostal tumor can easily be pushed up and drawn out of the chest. An enucleation of a subcostal cyst is dangerous on account of possible hemorrhage. The capsule of the goiter should be removed with it.

THE THYMUS AS A FACTOR IN EXOPHTHALMIC GOITER

Von Haberer of Innsbruck communicated his results from thymectomy in exophthalmic goiter and goiter. He has now a record of sixteen cases of resection of the thymus. In fourteen cases the thyroid and the thymus were both removed; in two cases the thymus alone was removed, and one patient was cured. In eight cases there was exophthalmic goiter with hyperplasia of the thymus, while in seven there was simple goiter. The question whether in certain cases the thymus and in others the thyroid should be attacked operatively, has not yet been settled. There are severe cases of exophthalmic goiter without hyperplasia of the thymus. Still, he believes that in all cases of exophthalmic goiter and goiter one should determine whether or not the thymus is unduly large and remove it in case of hyperplasia.

According to Albert Kocher of Bern, the experience in Bern is not the same. A participation of the thymus was found only in very rare cases. If it was discovered at operation its removal did not seem to be indicated, according to

the experience there, as very frequently, after the removal of the thyroid, the thymus became reduced in size. The hyperplasia of the thymus seemed to Kocher to be a regional and familial affection. He called attention further to the connection between hyperplasia of the thymus and hypoplasia of the adrenals. In two cases of thymectomy one patient was cured.

In the discussion Klose of Frankfort referred the contradiction in the experience of the two previous speakers and himself to regional conditions, and briefly described his observations.

Schloffer of Prague regards thymectomy as not always a very easy operation. In one of his cases it proved peculiarly complicated. In conclusion, von Haberer gave his opinion that thymectomy in case of hyperplasia of the thymus presented no difficulties.

PUNCTURE OF THE CORPUS CALLOSUM

Stieda reported the results which had been obtained at the Halle clinic with puncture of the corpus callosum in genuine epilepsy and idiocy. One case of jacksonian epilepsy with a congested papilla was of special interest in that the attacks gradually ceased completely with no further signs of choked disk to date after four and one-half years, while in most cases of epilepsy there is only a temporary cessation but a decided weakening of the attacks.

An earlier operation will surely give better results, as the puncture of the corpus callosum is a minor operation, quickly made and not dangerous. It can be done without injuring the brain and without shock, and under local anesthesia. In comparison with the other methods of operating for genuine epilepsy, puncture of the corpus callosum is not only a competitor but probably deserves preference.

Hildebrand of Berlin has performed puncture of the corpus callosum twice and was not very much pleased with the results. He does not regard the operation as so very insignificant, as it is easy to injure a vein and produce dangerous bleeding.

Tilmann of Cologne in case of epilepsy first determines by a lumbar puncture whether there is increased pressure. If positive, he makes a puncture of the ventricle; if he also finds here an increased pressure, he punctures the corpus callosum.

Lossen of Cologne applied puncture of the corpus callosum in three cases of hydrocephalus without results. In his opinion, the operation must be made in several places in order to secure success. He recommends puncture of the cisterna magna, but in addition he makes a puncture of the corpus callosum and of the ventricle.

Schloffer of Prague has performed puncture of the corpus callosum about twenty times and observed a temporary unilateral paralysis following it in one case.

DEEP INJECTIONS OF ALCOHOL FOR NEURALGIA

Härtel has treated twenty-seven cases of trigeminus neuralgia according to his method with injections of alcohol into the gasserian ganglion with immediate relief in every instance with the exception of three hysterics. In relapses freedom from pain could always be secured again by repeating the injection. The method is superior to all operative and conservative peripheral methods and is calculated materially to reduce the number of intracranial operations.

GANGLIECTOMY FOR OCCIPITAL NEURALGIA

Oehlecker of Hamburg-Eppendorf reported on a new operation in the field of nervous diseases, namely, the extirpation of the second spinal ganglion in certain forms of occipital neuralgia. One patient had unbearable neuralgia recurring after a peripheral operation on the occipitalis major nerve and was completely cured by Oehlecker's operation. In another, the occipital neuralgia developed after injury of the anterior branch of the third cervical nerve, and the occipitalis major was extirpated together with the ganglion. The same operation was performed on a third patient in whose case it was assumed that the cause of the neuralgia, which came on after an operation for carcinoma of the tonsil and base of the tongue, was more centrally situated.

SURGICAL MEASURES IN PULMONARY TUBERCULOSIS

Friedrich of Königsberg reported on the systematic surgical treatment of pulmonary tuberculosis by removal of ribs and induced operative paralysis of the diaphragm, etc., by cutting the phrenic and intercostal nerves. The performance of the operation in two stages, the use of local anesthesia and the limitation of the extent of the resections in suitable cases have gradually led to the extension of the indications even to cases of medium severity. He was not ready to give a final judgment on this operative paralysis of the phrenic nerve, but he took a very conservative and skeptical position.

Sauerbruch of Zurich described the indications for operative treatment. Fresh incipient cases are not suited for operation. Those cases, however, in which an active progressive process is present in both lungs are to be excluded. The cases best suited to the operation are those of a fibrous character. Of 122 patients operated on by an extrapleural plastic operation, 2 have died, 27 have grown worse, 65 remarkably improved and 24 are cured. One can speak of an actual cure only after the lapse of two years. Sauerbruch applies the same method of operation as Friedrich and is, in general, an opponent of using a filling.

Wilms of Heidelberg considers the use of a filling under definite indications as justified and curative. In addition to this, he is applying resection more and more. He has operated in 21 cases, with 1 death as a result of the operation and 2 occurring later. Four patients are cured, 7 remarkably improved and 5 others improved. His *Pfeilerresektion* technic cuts the ribs close to the spine and sternum.

BUDAPEST LETTER

BUDAPEST, May 4, 1914.

Birth and Death Statistics of Europe

The Hungarian Statistical Bureau publishes the following data of the population movement of Europe from 1902 to 1911. The increase of population in percentage is as follows:

	Per Cent.
Russia	18.81
Servia	15.83
Roumania	14.38
Bulgaria	14.12
Germany	13.64
Holland	12.79
Switzerland	11.65
Denmark	9.52
Belgium	8.61
England	8.30
Austria-Hungary	7.78
Sweden	6.99
Norway	6.69
Italy	6.05
Portugal	5.90
Spain	4.70
France	1.42

According to these statistics the Slavs themselves rank foremost and the Slavonic nations occupy the second place. From a geographic point of view the Balkan people are first, while the so-called *Kulturstaaten* (cultured nations) which lead in art, technical sciences, politics, etc., rank last.

The mortality statistics show quite a different picture. Here, naturally enough, the cultured states rank first. Taking ten thousand inhabitants as a basis, the rate of mortality from 1902 to 1912 is as follows:

Russia	298
Roumania	256
Hungary	294
Servia	236
Austria	232
Bulgaria	231
Spain	224
Italy	215
France	193
Germany	184
Finland	178
Ireland	173
Belgium	164
Scotland	163
England	152
Switzerland	150
Holland	149
Sweden	147
Norway	140
Denmark	140

Damages Paid by An Insurance Company to a Doctor for Libel

A well-known foreign insurance company working in Hungary circulated a letter to all the insurance companies with the information that it had withdrawn its confidence from a certain doctor, because his urine examinations were unreliable. As the doctor in question had been the medical adviser for several insurance companies, a large part of his livelihood has been derived from the examination fees, and considerable material loss was involved. On inquiry for the reason of his dismissal, the letters from the directors, containing instructions to dismiss him because he was an "unreliable doctor" were shown to him. The doctor sought the advice of the medical association, and was advised to sue the company for libel and damages. The question of libel has not been decided, as yet, but damages of $2,000 (10,000 kronen) have already been awarded him.

Marriages

JAMES LYMAN WHITNEY, M.D., San Francisco, to Miss Elizabeth Goodrich of Saratoga, Cal., May 14.

JOSEPH H. WILLIAMS, M.D., Webster Groves, Mo., to Miss Maud North of Gray Summit, Mo., May 28.

ROBERT CLAYTON THACKERAY, M.D., Racine, Wis., to Miss Marion Browne, at Evanston, Ill., May 16.

GEORGE WASHINGTON GAULT, M.D., to Miss Mabel E. Sellers, both of Marysville, Pa., May 1.

LOUIS K. GUGGENHEIM, M.D., to Miss Maude Hellman, both of St. Louis, May 21.

Deaths

Ferdinand Eugene Daniel, M.D. editor of the *"Red Back" Texas Medical Journal;* and one of the best-known practitioners of the Southwest; died at his home in Austin, Tex., May 14, aged 74. He was born in Hicksford, Va., July 18, 1839, and was graduated from the New Orleans School of Medicine in 1862. Before his graduation, he had been a private of the line in the confederate service, and immediately after his graduation he reentered the service as surgeon. He also served during 1863 as Judge Advocate with the Army of the Tennessee, as secretary of the Army Board of Medical Examiners in General Bragg's division; and also on the staff of Lieut. Gen. Hardee. He was for many years a member of the State Medical Association of Texas, and was its first president in 1904, under the reorganization. Dr. Daniel was one of the founders of the first Texas medical college and a member of its faculty in 1867 and 1868. He founded the *Texas Courier Record of Medicine,* and established the *"Red Back" Texas Medical Journal* in 1885. Dr. Daniel was widely known as a writer, not only of polemics, but on scientific subjects.

James Gillespie Hunt, M.D. Jefferson Medical College, 1871; a member of the Medical Society of the State of New York; formerly president of the Northern Branch of the New York State Medical Association and Oneida County Medical Society; five years commissioner of the State Board of Health; local surgeon to the New York, Ontario and Western; Delaware, Lackawanna and Western, and West Shore Railways; a member of the staff of the Faxton Hospital, Utica, N. Y.; for three terms coroner of Oneida County; and for twenty years health officer of Utica; formerly assistant surgeon to the Forty-Fourth Separate Company, N. G., S. N. Y.; died at his home, May 17, from cerebral hemorrhage, aged 68.

John E. Brady, M.D. University of Buffalo, N. Y., 1860; a Fellow of the American Medical Association since 1866; a charter member of the Michigan State Medical Society; and for some time president of the Grand Rapids Medical and Surgical Society; coroner of Kent County, Mich., for several terms; surgeon to Butterworth and the Union Benevolent Association hospitals, Grand Rapids; formerly professor of physical diagnosis, and diseases of the chest, heart and lungs in Grand Rapids Medical College; assistant surgeon of the Forty-Fifth Illinois Volunteer Infantry during the Civil War; died at his home in Grand Rapids, May 18, aged 77.

James McDonald Keller, M.D. University of Louisville, Ky., 1852; medical director in the confederate service throughout the Civil War; once professor in Louisville Medical College and Kentucky School of Medicine, president of the Board of Education of Louisville, and president of the Kentucky State Medical Association; for forty years a practitioner of Hot Springs, Ark.; at one time president of the Arkansas Medical Society, and an honorary member of the Hot Springs-Garland County Medical Society; died at his home in Hot Springs, May 27, aged 82.

Edward Marsh, M.D. Bellevue Hosoital Medical College, 1875; of Esperance, N. Y.; a member of the Medical Society of the State of New York; and one of the best-known practitioners of the Schoharie Valley; was struck by a freight train at Central Bridge, N. Y., May 19, and died from his injuries a few hours later in St. Peter's Hospital, Albany, aged 63.

John P. Webster, M.D. Hahnemann Medical College, Chicago, 1883; Harvey Medical College, Chicago, 1896; a Fellow of the American Medical Association; a member of the Mississippi Valley Medical Association, American Association of Railway Surgeons, and Erie Railroad Surgeons' Association; chief surgeon of the Chicago and Western Indiana Railway; local surgeon to the Erie and Monon systems; surgeon to the Englewood Hospital and St. Ann's Hospital Sanatorium; died at his winter home in Pasadena, Cal., May 24, aged 62.

Joseph Edouard Adolphe Lanouette, M.D. University of Bishop's College, Montreal, 1872; a member of the New Hampshire Medical Society and American Public Health Association; formerly president of the Manchester, N. H., Board of Health; and of the New Hampshire State French Medical Society; consulting surgeon to Sacred Heart Hospital, Manchester; surgeon of the Ninety-Second Battalion, Canadian Militia, from 1873 to 1881; died at his home in Manchester, May 16, from cerebral hemorrhage, aged 64.

Christopher Hamilton Tebault, M.D. Tulane University, New Orleans, 1862; surgeon of the Twenty-First Louisiana and Tenth South Carolina Infantry, C. S. A., during the Civil War; for two years teacher of anatomy in his Alma Mater; a member of the staff of Charity Hospital, New Orleans, for many years; surgeon-general of the United Confederate Veterans, for twenty-five years; one of the best-known practitioners of New Orleans; died at his home in that city, May 24, aged 74.

Brooks Ford Beebe, M.D. Medical College of Ohio, Cincinnati, 1880; a Fellow of the American Medical Association; a member of the Cincinnati Academy of Medicine, American Medical-Psychological Association, Mississippi Valley Medical Association and Ohio Valley Medical Society; for many years professor of mental diseases in his Alma Mater; died at his home in Cincinnati, May 29, from cerebral hemorrhage, aged 63.

John Forrest Dillon, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1850; who, after six months of practice, took up the study of law, and was judge of the seventh judicial district, and later a justice of the supreme court, New York; and professor of real estate and equity jurisprudence in Columbia University; died at the home of his daughter-in-law in New York City, May 5, aged 82.

William James Dugan, M.D. Jefferson Medical College, 1896; a member of the Medical Society of the State of Pennsylvania; professor of electrotherapeutics in his Alma Mater, and consulting neurologist to the Jefferson Hospital; bacteriologist to the Maigner Laboratory of Original Research, and Pepper Laboratory of the University of Pennsylvania; died at his home in Philadelphia, May 20, aged 45.

Murdoch Alexander Lindsay, M.D. University of Edinburgh, Scotland, 1908; professor of pathology and bacteriology in Dalhousie University, Halifax, N. S.; a pathologist in the employ of the Nova Scotian government; was one of the passengers lost by the sinking of the steamer *Empress of Ireland,* after collision in the St. Lawrence River, May 29.

John William Dowling, M.D. New York Homeopathic Medical College New York City, 1886; professor of medicine and secretary of the faculty of his Alma Mater; attending physician to the Flower Hospital, New York City; died in Middletown, N. Y., May 11, from cerebral hemorrhage, aged 49.

Jephtha C. Clark, M.D. New York Homeopathic Medical College, New York City, 1885; for twenty-seven years a practitioner of Andover, N. J.; for several years a member of the Board of Education, and coroner of Sussex County; died at his home, May 16, from cerebral hemorrhage, aged 54.

Louis Hartnagel Redon, M.D. McGill University, Montreal, 1901; of Seattle, Wash.; a Fellow of the American Medical Association, aged 37; who was found unconscious, in an alley, May 10, having apparently been injured by an automobile; died in a hospital in Seattle, May 11.

William Edward Sullivan, M.D. University of Michigan, Ann Arbor, 1912; aged 36; a member of the Louisiana State Medical Association; and a practitioner of Monroe; died in that city, May 21, from the result of injuries received when his automobile ran into the Ouachita River.

William E. Reed, M.D. College of Physicians and Surgeons, St. Joseph, Mo., 1881; for more than thirty years a practitioner of Los Angeles, Cal.; died at his home in that city, April 17, aged 67.

William C. Henry, M.D. Miami Medical College, Cincinnati, 1870; a member of the Indiana State Medical Association; and a charter member and first president of the Dearborn County Medical Society; surgeon of the Eighty-Third Indiana Volunteer Infantry during the Civil War; died at his home in Aurora, Ind., about May 20, aged 73.

Robert Bailey Nelson, M.D. Vanderbilt University, Nashville, Tenn., 1903; a member of the Tennessee State Medical Association; of Memphis; aged 33; who was injured in a collision between his automobile and a railway train near Memphis, April 15; died from the results of his injuries at the Gartly-Ramsay Hospital, Memphis, May 12.

Howard B. Gates, M.D. New York Homeopathic Medical College, New York City, 1885; a Fellow of the American Medical Association; for many years superintendent of the San Jose, (Cal.) County Hospital; and later a surgeon of Los Angeles; died in Rome, Italy, May 9, from peripheral neuritis, aged 46.

George William Goetz, M.D. University of Louisville, Ky., 1910; of McKeesport, Pa.; was found dead on the railway tracks near Hawkins Station, Pa., May 12, aged 28. It is believed that Dr. Goetz was murdered and robbed and his body thrown on the tracks to conceal the evidence of the crime.

Philip B. Housekeeper, M.D. Jefferson Medical College, 1868; a member of the Medical and Chirurgical Faculty of Maryland; and physician to the Cecil County, Md., almshouse and insane hospital; died at his home in North East, Md., May 17, from heart disease, aged 68.

Charles Frederic Wainright, M.D. Bellevue Hospital College, 1880; of New York City; from 1880 to 1902, professor of internal medicine and dean of the University Medical College, Kansas City, Mo.; died at his home in Englewood, N.J., May 7, from heart disease, aged 55.

William M. S. Curtiss, M.D. Baltimore University, 1893; a member of the Connecticut State Medical Society; in 1900 a representative from Cornwall in the General Assembly; died at his home in Bristol, Conn., May 17, from nephritis, complicated by pleurisy, aged 43.

Mason Volney Hunt, M.D. Medical College of Ohio, Cincinnati, 1874; medical director of the Liberal Life Insurance Company of Indiana, Anderson; and a member of the staff of St. John's Hospital, died at his home in Anderson, May 18, from heart disease, aged 65.

Daniel Morris Woolley, M.D. New York University, New York City, 1885; of Brooklyn; a specialist on diseases of the nose and throat; a member of the staff of King's County Hospital; died in a sanatorium in Flatbush, May 18, from carcinoma of the liver, aged 64.

William Shepard, M.D. Eclectic Medical Institute, Cincinnati, 1853; one of the founders of the Shepard Sanatorium; once a member of the legislature from Franklin County, Ohio; died at his home in Shepard, Ohio, May 15, from arteriosclerosis, aged 88.

William Crutcher, M.D. Jefferson Medical College, 1896; a Fellow of the American Medical Association; and a member of the first state board of medical examiners of Arkansas; died at his home in Pine Bluff, Ark., May 22, from pulmonary tuberculosis, aged 47.

Charles Hemsted Burbeck, M.D. Albany, N. Y., Medical College, 1859; a Fellow of the American Medical Association; a surgeon of volunteers during the Civil War; and a veteran physician of Troy, N. Y.; died at his home in that city, May 9, from pneumonia, aged 77.

Otis H. Babbitt, M.D. New York Homeopathic Medical College, New York City, 1882; a Fellow of the American Medical Association; for several years physician to the Cayuga County Jail; died at his home in Auburn, N. Y., May 8, aged 60.

James Hervey Neagle, M.D. Louisville, Ky., Medical College, 1876; a Confederate veteran, and for many years a practitioner of Portland, Ore., and Seattle, Wash.; died at his home in Seattle, May 8, from nervous breakdown, aged 70.

Henry Herbert Lee, M.D. University of Vermont, Burlington, 1881; a member of the Vermont State Medical Society; died at his home in Wells River, early in April, from carcinoma of the pancreas, aged 56.

James Alexander Ashbaugh, M.D. Trinity Medical College, Toronto, 1891; for eleven years medical health officer of Windsor, Ont.; died in the Guelph (Ont.) Sanitarium, May 10, aged 41.

Christopher John Miller, M.D. Western Reserve University, Cleveland, Ohio, 1864; for many years a practitioner of Mansfield and Richmond County, Ohio; died in the Odd Fellows' Home of Ohio, Springfield, Ohio, March 6, from senile debility, aged 80.

James D. Whitney, M.D. Cooper Medical College, San Francisco, 1863; for many years a practitioner of San Francisco, and at one time a member of the staff of Governor Waterman; died in the Vendome Hotel, San Jose, Cal., May 9.

Horatio S. Brewer, M.D. Bennett Medical College, Chicago, 1879; for twenty-five years a member of the staff of the Chicago, Milwaukee and St. Paul Railway; a veteran of the Civil War; died at his home in Chicago, May 18, aged 68.

Carl D. S. Fruh, M.D. Jefferson Medical College, 1885; at one time demonstrator of anatomy in his Alma Mater; for nearly forty years a druggist of Philadelphia; died at his home, May 13, from nephritis, aged 64.

John Brelsford House, M.D. Vanderbilt University, Nashville, Tenn., 1894; for several years health officer of Allen County, Ky.; died at his home in Scottsville, May 8, from cerebral hemorrhage, aged 49.

George Ralph Bugbee, M.D. Dartmouth Medical School, Hanover, N. H., 1872; a member of the State Medical Society of Wisconsin; died at his home in Wausau, Wis., May 14, from heart disease, aged 65.

Frank Henry Nettles, M.D. Washington University, St. Louis, 1905; a member of the Missouri State Medical Association; died at his home in Cape Girardeau, Mo., May 11, from nephritis, aged 41.

Sharon Peter Heilman, M.D. University of Pennsylvania, Philadelphia, 1900; formerly of Kittanning, Pa.; and surgeon of the Kittanning Plate Glass Company; died in Phoenix, Ariz., May 11, aged 40.

William Elmore Barr, M.D. Ohio Medical University, Columbus, 1902; formerly of London, Ohio; died at the home of his father-in-law in Columbus, Ohio, May 8, from tuberculosis, aged 36.

Lafayette Stuck, M.D. University of Michigan, Ann Arbor, 1877; for thirty-five years a practitioner of Allegan, Mich., died at his home in that city, May 13, from cerebral hemorrhage, aged 66.

Ohan Gaidzakian, M.D. University of Vermont, Burlington, 1883; also a clergyman; formerly of Boston, Mass.; died in a sanitarium at Harmon-on-the-Hudson, N. Y., recently, aged 76.

Elmer Dertly Eddy, M.D. College of Physicians and Surgeons in the City of New York, 1873; of Providence, R. I.; died at the home of his daughter in that city, May 6, aged 65.

John H. Mathieson, M.D. McGill University, Montreal, 1871; formerly a member of the Board of Aldermen of St. Mary's, Ont.; died at his home in that place, May 10, aged 70.

Julius Benson Evans, M.D. Medical College of Fort Wayne (Ind.) 1880; a veteran of the Civil War; died at his home in Ada, Ohio, February 21, aged 70.

Felix Bernard Bramlette, M.D. University of Texas, Galveston, 1908; formerly of Greenville, Texas; died at his home in Austin, Texas, May 9, aged 30.

Omar Pasha Huston, M.D. University of Michigan, Ann Arbor, 1878; fell from a loft in his barn near Coweta, Okla., May 7, and was instantly killed.

Edwin E. Williams (license, Ill., 1893); a practitioner of Streator, Ill., for fifty-one years; died at his home, May 13, from chronic nephritis, aged 77.

Samuel B. Wright, M.D. University of Nashville, Tenn., 1875; died at his home in Stanford, Ill., May 13, from carcinoma of the throat, aged 63.

Nicholson C. Washington, M.D. Washington University, St. Louis, 1867; a Confederate veteran; died at his home in St. Louis, May 6, aged 70.

R. Pinkney Blackistone, M.D. University of Maryland, Baltimore, 1849; died at his home in River Springs, Md., recently, aged 91.

T. G. Butler, M.D. Medical College of Georgia, Augusta, 1860; of Malvern, Ark.; died at Pine Bluff, Ark., April 25, aged 84.

George W. Campbell, M.D. Jefferson Medical College, 1879; died at his home in Newport, Pa., May 5, aged 68.

D. C. Reese (license, Mo., 1883), died at his home in La Belle, Mo., April 26.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

GLYCO-HEROIN, SMITH

Report of the Council on Pharmacy and Chemistry

The following report was submitted to the Council by a referee and publication authorized.

W. A. PUCKNER, Secretary.

Glyco-Heroin, Smith, is marketed in a showy "patent-medicine" type of package, the label on which announces the presence of ½ grain of heroin to the fluidounce and admits the presence of 3.5 per cent. alcohol, an active ingredient that is not discussed in any way in the literature sent out by the manufacturer.

The composition of Glyco-Heroin, Smith, is given as follows: "Each teaspoonful represents: Heroin 1/16 grain, White Pine Bark 3½ grains, Ammonium Hypophosphite 3 grains, Balsam Tolu ¼ grain, Hyoscyamus 1 grain, Glycerin Q. S." The alcohol is not mentioned in the formula.

The advertising matter says of the merits of the formula:

"Despite the fact that heroin, which is universally recognized as an invaluable respiratory sedative, is a conspicuous element of Glyco-Heroin, Smith, the other constituents, henbane, ammonia hypophosphite, balsam tolu and white pine bark are factors of no less importance; indeed, it is through the concerted action of its several ingredients that the preparation proves so notably beneficial in the class of affections in which it is indicated. The constantly increasing popularity of the preparation in the treatment of respiratory affections is the best adducible evidence of its value in such disorders."

The absurdity of this assertion will be appreciated on comparing the nature, quantities and activities of the several ingredients. Thus, while heroin, a potent habit-forming drug, is present in unusually large proportions, tolu, an innocuous or comparatively harmless product, is said to be represented by ¼ grain, a relatively small quantity, hardly sufficient to impart even a distinctive taste or flavor. Ammonium hypophosphite, in the amount said to be present, may be considered to be practically useless, while the dose of hyoscyamus, an additional narcotic, is fairly large. The white pine bark present is probably as active as would be a corresponding amount of white pine shavings or of turpentine sufficient to give the preparation a slight odor. The vehicle, glycerin, is claimed to be "notably advantageous," but not a word occurs in the discussion by the manufacturer in regard to the presence of alcohol, which is certainly quite as active medicinally as the balsam of tolu and contributes fully as much to the flavor or taste of the preparation as does the white pine bark.

In prominent type on the outer label of the trade package we are told that the preparation is intended for the treatment of "COUGH, ASTHMA, PHTHISIS, PNEUMONIA, BRONCHITIS, LARYNGITIS, WHOOPING-COUGH AND KINDRED AFFECTIONS." In much smaller type: "Glyco-Heroin (Smith) is distinctly a product designed expressly for the use of physicians." The circular included with the trade package, however, bears statements which would tend to encourage self-drugging by the layman, and in view of the manner in which the preparation is exploited are undoubtedly intended to do so. For instance:

"*Bronchitis.*—In the acute form of bronchitis, Glyco-Heroin (Smith) acts most happily. It tends to diminish the congestion and inflammation of the lining of the air passages, relieves the pain and institutes repair. . . .

"*Phthisis.*—In the treatment of the cough of phthisis, Glyco-Heroin (Smith) is used with the most gratifying results. It checks the night sweats, acts favorably upon the reflexes, increases expectoration and induces refreshing sleep.

"*Asthma.*—The preparation diminishes the intensity of the paroxysms and lengthens the intervals between their recurrence. By the administration of the preparation, asthmatic attacks can frequently be aborted.

"*Pneumonia.*—In the initial stage of pneumonia, the preparation exercises a calming, antipyretic and sedative effect. In the latter stages of the disease, the analgesic and expectorant properties of the product are well displayed.

"*Whooping-Cough.*—Administered in doses of from five to ten drops, this preparation affords surprisingly satisfactory results. The cough rapidly loses its spasmodic character and the frequency of the paroxysms is considerably diminished."

How cruelly misleading the literature put out by the manufacturer of this nostrum is, will be apparent from a comparison of the rather large dose of heroin in a teaspoonful of the nostrum and the directions on the package that:

"The adult dose of Glyco-Heroin (Smith) is one teaspoonful repeated every two hours or at longer intervals, as the case may require.

"Children of 10 or more years, from a quarter to a half-teaspoonful.

"Children of 3 years or more, 5 to 10 drops."

A WICKED FALSEHOOD

Included in much of the advertising matter that has been put out is the bare-faced untruth that the preparation does not produce narcotism or habituation. Here is a quotation from an undated circular:

"Glyco-Heroin (Smith) is decidedly preferable to preparations containing codeine or morphine, by reason of the fact that it does not produce narcotism, constipation, gastric disturbance nor habituation, even though its administration be protracted."

That this assertion is not in keeping with facts is evidenced by the recent report of a study on the sale and use of heroin made by the U. S. Department of Agriculture. From the information gathered it appears that the sales of heroin and heroin-containing preparations have increased greatly, particularly in those states which have rigid laws preventing the indiscriminate sale of morphin and cocain. Investigation of the subject establishes the fact that many drug victims who formerly used morphin and cocain, and who under the new laws find it difficult to obtain these substances, have begun using heroin, the sale of which is not as yet carefully restricted under state laws. The drug is said to be fully as dangerous as morphin, and by many is held to be much worse, for the reason that it occasionally kills the victim outright, and its habitual use is far harder to overcome than that of other drugs.

Phillips,[1] in discussing the prevalence of the heroin habit, reports, among others, the case of a physician aged 60 who began to take heroin because he suffered from a chronic cough and thought there was no danger of habit from the use of this drug because he believed the statements of various manufacturing firms who claimed that there was no danger of habit.

In a pamphlet now being distributed to the medical profession, entitled, "Glyco-Heroin (Smith), an exposition of its components together with references to its value in the treatment of Bronchitis, Cough, Cough of Phthisis, Laryngitis, Pneumonia and allied disorders of the Respiratory Tract," the several alleged uses of the nostrum in the treatment of cough, "Regardless of the nature of its underlying cause, . . . whether of recent origin or of long duration," are discussed at length, and eminent practitioners with degrees extending the width of the printed page are quoted in support of the statements made. While it may be permissible for a theoretically trained medical tyro who lays claim to the right of appending the abbreviations M.A., M.D., D.C.L., L.R.C.P. to his name to laud a heterogeneous habit-forming cough-syrup like Glyco-Heroin, Smith, similar testimonials from a man entitled to append Ph.G., M.S., M.D. to his name makes one doubt the value of the training, either scientific, pharmaceutical or medical, that has been given the poor unfortunate who, according to his own statements, indiscriminately doses a female patient of 7 and a male patient of 40 with huge doses of heroin every two, four or six hours.

The danger of contributing to the spread of the heroin habit by the use of preparations of this type is indicated by an editorial in THE JOURNAL of the American Medical Association,[2] which points out that although heroin and its hydrochlorid have been in use but a few years they have already established themselves among the habit-forming drugs and

1. Phillips, John: Prevalence of the Heroin Habit, THE JOURNAL A. M. A., Dec. 14, 1912, p. 2146.

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have become sufficiently conspicuous in this respect to awaken the thinking public to the deplorable results for which they may become responsible. Phillips,[1] in the article mentioned above, quotes Petty, who reports that in the last 150 cases of drug habit coming under his care he saw eight cases of heroin addiction. Three of these were initial cases; in one the patient had been cured of the opium habit, but following an operation heroin was prescribed, and the habit followed. The remaining four patients purposely substituted heroin for morphin, to which they had been addicted.

THE GROWTH OF HEROIN ADDICTION

The imminent danger of substituting heroin for either morphin or cocain is shown by the fact, reported by the U. S. Department of Agriculture, that during the early months of 1913 the coroner's office in Philadelphia County, Pa., held inquests on five sudden deaths from heroin poisoning. In each case the victim was a heroin fiend and took an overdose. Drug fiends are apparently able to consume relatively large quantities of morphin or cocain, but any sudden and material increase in the amount of heroin taken is liable to prove fatal. As indicating the wide sale of this substance, it is known that one druggist in Pennsylvania whose store is located in an undesirable section of his city has been buying heroin tablets in 25,000 lots.

GLYCO-HEROIN, SMITH, A "PATENT MEDICINE"

The popularity of Glyco-Heroin, Smith, as a household nostrum is suggested by the fact that one of the larger department-store type of drug-stores in the city of Philadelphia lists this preparation in its "patent-medicine" catalogue at $1.75 per bottle and sells it freely to all who care to buy. This is due to the fact that Pennsylvania, like many other states, does not include heroin in the prohibited list of habit-forming drugs that can be supplied only on physicians' prescriptions.

To what extent Glyco-Heroin, Smith, is responsible for developing the rapidly growing heroin habit is of course problematic. It is reasonable, however, to suppose that a preparation, each teaspoonful of which contains so large a dose of heroin as does this nostrum, when taken as repeatedly and as indiscriminately as is directed by the manufacturer, would offer possibilities for harm sufficient in number to induce the thinking medical practitioner to avoid its use altogether and at least to suggest to even the most commercial dabbler in the healing art the desirability of carefully considering its potency for harm before endorsing its use in the treatment of "cough and kindred affections."

AN EXPLANATION

It is never the intention of THE JOURNAL to do an injustice. Authenticated statements made to us relating to our article of April 11 regarding Wine of Cardui, manufactured by the Chattanooga Medicine Company, prompts the publication of the following:

The Chattanooga Medicine Company claims that only the alcohol needed as a solvent and preservative is used in the preparation of Wine of Cardui and that alcohol is only used for those purposes. They assert that they have employed leading chemists who have sought widely for another preservative, but without success, and that they once tried 5 per cent. and again 3 per cent. less alcohol but found that hundreds of cases of the preparation spoiled as a result of insufficient preservative. They state that the taste of the infusion is such as to prevent its use as a beverage and that it is not so sold or used, in fact that in too large doses the preparation has been found to act as an emetic. Based on the foregoing statement it is apparent that the terms "booze" and "tipple," as these words are commonly understood, cannot be applied to the preparation.

The concern says that when the present managers took control in 1906, they eliminated from the wrappers claims that, although for about thirty years presented in that same form, they felt might fairly be regarded as extreme; that their present desire and intention is to avoid on the wrappers or elsewhere claims that might reasonably or generally be objected to as extravagant.

In THE JOURNAL'S article, John A. Patten, the principal owner of the Wine of Cardui business, was referred to, and his high standing in the organization of the Methodist Episcopal Church emphasized. To offset THE JOURNAL'S criticisms, many letters are submitted to show that Mr. Patten is a man of high personal standing, and "that his relation to his church is based on his ability and service rather than on any financial gifts he may or may not have made."

2. Facts About Heroin, Current Comment, THE JOURNAL A. M. A., Dec. 21, 1912, p. 2262.

Association News

PROGRAM OF PHILADELPHIA CLINICS

The following clinics have been arranged by the Committee on Clinic Days and will be held in Philadelphia on Monday, June 22, and on Friday and Saturday, June 26 and 27—the day preceding and the days following the Scientific Assembly of the Association. Fellows who attend the coming annual session can readily arrange to spend two days in Philadelphia by planning to reach that city on the morning of June 22. An hour's run in the evening will enable them to reach Atlantic City. In the same manner, they can arrange to spend the end of the week at these clinics.

FREDERICK DOUGLAS HOSPITAL, 1530 Lombard Street:

Monday, June 22.
11 a. m. Gynecologic Clinic. J. O. McDougald.
5 p. m. Lecture Mental and Nervous Diseases. Alfred Gordon and R. W. Bailey.
Saturday, June 27.
11 a. m. Tuberculosis. C. A. Lewis.
Tinea Tonsurans. John P. Turner.

GYNECEAN HOSPITAL, 247 North Eighteenth Street:

Monday, June 22.
9 a. m. Gastroptosis. Henry D. Beyea.
10 a. m. Hysterectomy. Theodore A. Erck.
12 m. Hysterectomy. Brook M. Anspach.
Saturday, June 27.
9 a. m. Cystocele and Rectocele. George W. Outerbridge.
10 a. m. Prolapse of the Uterus. Henry B. Ingle.
11 a. m. Retroversion. J. Watson Martindale.

EPISCOPAL HOSPITAL, Front Street and Lehigh Avenue:

Monday, June 22.
11 a. m. Abdominal Operation. L. H. Mutschler.
12 m. General Surgery. Thomas R. Neilson.
1 p. m. Orthopedic Clinic. Astley P. C. Ashhurst.
Saturday, June 27.
9 a. m. Surgical Clinic. Astley P. C. Ashhurst.
11 a. m. General Surgery. Emory G. Alexander.
2 to 4 p. m. Inspection of Hospital. Astley P. C. Ashhurst.

PHILADELPHIA GENERAL HOSPITAL, Thirty-Fourth and Pine Streets:

Monday, June 22.
10 a. m. Tuberculosis. A. P. Francine.
11 a. m. The Anemias. J. H. Musser, Jr.
12 m. Neurologic Clinic. Charles S. Potts.
1 p. m. Cerebral Palsies. D. J. McCarthy.
2 p. m. Tuberculosis in the Home. Ward Brenton.
3 p. m. Operations on the Eye. J. W. Croskey.
3 p. m. Vulvovaginitis in Children. H. C. Carpenter.
Saturday, June 27.
11 a. m. Gynecologic Clinic. Ella B. Everitt.

JEFFERSON MEDICAL COLLEGE HOSPITAL, Tenth and Sansom Streets:

Monday, June 22.
11 a. m. Obstetric Clinic. E. P. Davis.
11 a. m. Neurologic Clinic. F. X. Dercum.
12 m. Dermatologic Clinic. H. W. Stelwagon.
12 m. Cardiovascular Disease. H. A. Hare.
12 m. Nose and Throat Cases. D. Braden Kyle.
1 p. m. Medical Clinic. S. Solis-Cohen.
2 p. m. Ophthalmologic Clinic. W. M. Sweet.
3 p. m. Surgical Clinic. F. T. Stewart.
Friday, June 26, a Special Clinic for the Class of 1874 of the Jefferson Medical College, in the Clinical Amphitheater from 10 a. m. to 2 p. m. E. E. Montgomery. All physicians are welcome.
Saturday, June 27.
9 a. m. Medical Clinic. Thomas McCrae.
9 a. m. Gynecologic Clinic. E. E. Montgomery and J. M. Fisher.
10 a. m. Orthopedic Surgery. H. A. Wilson.
11 a. m. Surgical Clinic. John H. Gibbon.
11:30 a. m. to 1 p. m. Renal Surgery. H. R. Loux.
1 p. m. Pediatric Clinic. E. E. Graham.
3 p. m. Surgical Clinic. F. T. Stewart.

HOWARD HOSPITAL, 801 South Broad Street:

Monday, June 22.
12:30 p. m. Surgical Clinic. Barton Cooke Hirst.

ST. JOSEPH'S HOSPITAL, Sixteenth Street and Girard Avenue:

Monday, June 22. In the East operating-room:
8:30-10 a. m. Uterine Prolapse. P. B. Bland.
10 a. m. Retrodisplacements of the Uterus. F. Hurst Maier.
11 a. m. Abdominal Surgery. Melvin M. Franklin.
12 m. General Surgery. Charles F. Nassau.
2 p. m. End-Results of Gastro-Enterostomies. J. A. Kelly.
3 p. m. General Surgery. J. F. X. Jones.
4 p. m. General Surgery. W. T. Ellis.
In the West operating-room:
8:30-10 a. m. Ear, Nose and Throat. G. M. Marshall.
11 a. m. Intestinal Disorders of Infancy. W. C. Hollopeter.
12 m. Neurologic Clinic. M. H. Bochrock.
4 p. m. Medical Clinic. J. C. Flynn.
In the Outpatient Department:
3 p. m. Eye Clinic. Paul J. Pontius.
4 p. m. Eye Clinic. Charles J. Jones.
Saturday, June 27.
In the East operating-room:
8:30-10 a. m. Orthopedic Surgery. J. M. Spellissy.
10-11 a. m. Pelvic Peritonitis. P. B. Bland.
11-12 m. Uterine Prolapse. F. Hurst Maier.
12 m. Gynecologic Surgery. E. E. Montgomery.
2 p. m. General Surgery. Charles F. Nassau.
3 p. m. General Surgery. J. F. X. Jones.
4 p. m. General Surgery. J. A. Kelly.
In the West operating-room:
8:30-10 a. m. Ear, Nose and Throat. G. M. Marshall.
11 a. m. Carotid Body. P. N. Bergeron.
12 m. Neurologic Clinic. M. H. Bochrock.
In the Outpatient Department:
3 p. m. Eye Clinic. Paul J. Pontius.
4 p. m. Ear, Nose and Throat Clinic. W. E. Quicksall.

KENSINGTON HOSPITAL, 136 Diamond Street:

Monday, June 22.
11 a. m. Clinic. H. C. Deaver.

WILLS HOSPITAL, 1810 Race Street:

Monday, June 22, there will be an operative clinic on reserved cases by W. M. Sweet, Paul Pontius, S. Lewis Ziegler, McCluney Radcliffe and Samuel D. Risley. Also a special arranged clinic on the Saturday following the meeting at Atlantic City by the same men.

PRESBYTERIAN HOSPITAL, 51 North Thirty-Ninth Street:

Monday, June 22.
10 a. m. Clinic. Edward N. Hodge.
12 m. Clinic. Richard Woods.
12 m. Clinic. George E. Shoemaker.
Saturday, June 27.
10:30 a. m. Clinic. Henry R. Wharton.
11 a. m. Clinic. John H. Girvin.

NORTHWESTERN GENERAL HOSPITAL, 2017-2019 North Twenty-Second Street:

Monday, June 22.
10:30 a. m. Clinic on Nervous and Mental Diseases. Alfred Gordon.
11:30 a. m. Surgical Clinic. J. Thompson Schell.
1:30 p. m. Genito-Urinary Clinic. Robert Beyer.
Saturday, June 27.
10:30 a. m. Medical Clinic. H. A. Smith.
11:30 a. m. Surgical Clinic. J. Thompson Schell.
1:30 p. m. Ear, Nose and Throat. Ellwood Matlack.

PHILADELPHIA LYING-IN CHARITY HOSPITAL, 126 North Eleventh Street:

Monday, June 22.
12 m. Hemorrhages of Pregnancy. Strickler Coles.
Saturday, June 27.
12 m. Lying-In Charity Methods. George M. Boyd.

GERMAN HOSPITAL, Girard and Corinthian Avenues:

Monday, June 22.
Afternoon. Surgical Clinic. John B. Deaver.
Saturday, June 27.
Afternoon, Surgical Clinic. John B. Deaver.

MEDICO-CHIRURGICAL COLLEGE, Eighteenth and Cherry Streets:

Monday, June 22.
10 a. m. Surgical Clinic. William L. Rodman.
12 m. Cardiac Cases. James M. Anders.
1 p. m. Obstetric Cases. George M. Boyd.
2 p. m. Orthopedic Clinic. James P. Mann.
3 p. m. Bronchoscopy. Ross H. Skillern.
Saturday, June 27.
11 a. m. Syphilis of Nervous System. Theodore H. Weisenburg.
12 m. Surgical Clinic. Ernest Laplace.
1 p. m. Eye Clinic. L. Webster Fox.
2 p. m. Deep Roentgenotherapy. George E. Pfahler.

UNIVERSITY OF PENNSYLVANIA HOSPITAL, 3400 Spruce Street:

Monday, June 22.
Surgical Clinic. Edward Martin, J. B. Carnett, E. L. Eliason and G. M. Laws. Exact hour announced later.
9 a. m.-12 m. Gynecologic Clinic. John G. Clark, B. M. Anspach, C. C. Norris and F. E. Keene.
9 a. m.-12 m. Clinical Medical Demonstrations. Alfred Stengel, O. H. P. Pepper, J. H. Austin, J. Herbert Fox, A. H. Hopkins and P. G. Miller.
10 a. m.-1 p. m. Surgical Clinic. Charles H. Frazier, George P. Muller and L. H. Landon.
11 a. m.-1 p. m. Orthopedic Clinic. G. G. Davis, William J. Merrill, Frank Dickson, Walter Elner and DeF. Willard.
12-3 p. m. Genito-Urinary Diagnostic Methods. E. H. Siter, U. A. Uhle, W. H. MacKinney, J. H. Laird, J. L. Herman and A. Randall.
2:30-3:30 p. m. Nose and Throat Work. Charles P. Grayson, W. S. Hargett and D. W. Husick.
3 p. m. Surgical Clinic. A. C. Wood and T. T. Thomas.
3 p. m. Eye Clinic. G. D. de Schweinitz, J. F. Carpenter, E. A. Shumway, T. B. Holloway, Carl Williams and H. M. Langdon.
Saturday, June 27.
Surgical Clinic. Edward Martin, J. B. Carnett, E. L. Eliason and G. M. Laws. Exact hour announced later.
Surgical Clinic. John B. Deaver, D. B. Pfeifer, G. G. Ross, and A. D. Whiting. Exact hour announced later.
9 a. m.-12 m. Gynecologic Clinic. John G. Clark, B. M. Anspach, C. C. Norris and F. E. Keene.
9 a. m.-12 m. Clinical Medical Demonstrations. Alfred Stengel, O. H. P. Pepper, J. H. Austin, J. Herbert Fox, A. H. Hopkins and P. G. Miller.
12 m. Pediatric Clinic. P. Crozier Griffith, M. Ostheimer, C. A. Fife, H. C. Carpenter and J. C. Gittings.
12:30 p. m. Cesarean Section. Barton C. Hirst.
1-2 p. m. Neurologic Clinic. William G. Spiller.
2-3 p. m. Social Service Work. Fred H. Klaer.
3-4 p. m. Ear Clinic. B. Alexander Randall and Ralph Butler.
3-4 p. m. Dermatologic Clinic. M. B. Hartzell.

MOUNT SINAI HOSPITAL, Fifth and Reed Streets:

Monday, June 22.
11 a. m. Surgical Clinic. Edward Martin, Max Staller and Nathaniel Ginsberg.
11 a. m. Nose and Throat Clinic. Lewis Fisher.
1 p. m. Hysterectomy. Leon Brinkmann.
Saturday, June 27.
11 a. m. Nose and Throat Clinic. Lewis Fisher.
2 p. m. Roentgen Therapy. George Rosenbaum.

METHODIST EPISCOPAL HOSPITAL, South Broad and Wolf Streets:

Monday, June 22.
10:30 a. m. Spinal Cases. J. Torrance Rugh.
12 m. Surgical Clinic. Levi J. Hammond.
1:30 p. m. Abdominal Cases. Richard C. Norris.
3 p. m. Throat and Ear Clinic. Walter Roberts.
Saturday, June 27.
10 a. m. Abdominal Cases. William R. Nicholson.
1 p. m. Herniotomy. Levi J. Hammond.
3 p. m. Ophthalmic Cases. Philip H. Moore.

WOMAN'S HOSPITAL, 2137 North College Avenue:

Monday, June 22.
9 a. m. Abdominal Operation. Marie K. Formad.
11 a. m. Pediatric Clinic. Eleanor Jones.
2 p. m. Violet Rays in Surgical Work. Kate W. Baldwin.
3 p. m. Adenoids and Tonsils. Laura Hunt.
Saturday, June 27.
9 a. m. Gynecologic Operations. Caroline M. Purnell.
10 a. m. Cystoscopy. Catherine MacFarlane.
2 p. m. Ophthalmologic Clinic. Mary Buchanan.
3 p. m. Throat Clinic. Margaret Butler.

MEDICAL MISSIONS AT THE ATLANTIC CITY SESSION

The Catholic members of the American Medical Association who are interested in medical missions are invited to apply for further information to, P. J. Flagg, M.D., the Marlborough Blenheim, Atlantic City, or Maryknoll, Ossining, N. Y.

Correspondence

A Caffein Addict with Asthenopic Symptoms

To the Editor:—Miss Y. A., aged 18, office clerk, of slight stature, frail physique and attentive and refined disposition, for four years had had the ordinary symptoms of asthenopia, which had been worse for several months. Refraction under complete cycloplegia showed hyperopic astigmia, axes oblique. A full correction was provided, which, to my surprise, gave but little relief. The correction was verified by repeated examinations and the most careful attention paid to the adjustment of the frames, but the symptoms continued. The patient became eccentric and stubborn, at times exhilarated, then depressed, and would exhibit lapses of memory and deportment with an indifference to the usual conventionalities and proprieties. The headaches were intermittent and not caused by near work, but were always increased by it in an attempt at reading, etc., during an attack. Insomnia was present at night, yet she would fall asleep at her work during the day.

Affairs were becoming serious and I was at my wits' end when one day the patient asked if there could be any danger in an overindulgence in Coca-Cola, stating that she drank from three to six glasses a day. In addition, she had two or three cups of strong coffee at mealtime, sometimes taking but

little other nourishment. Curtailing the amount of daily ingestion of caffein caused a prompt improvement in all symptoms, but unfortunately there is a possibility that the patient has acquired some rather detrimental incidental habits which will require a longer time for elimination.

I feel that such a case is of interest from an ophthalmologic point of view and also that it indicates that the profession should be more alive to the pernicious influence in habit formation of some of the popular beverages served to young persons at public "slop" fountains.

OTIS ORENDORFF, M.D., Canon City, Colo.

A Simple Method of Vaccination

To the Editor:—After reading Dr. Force's article on "An Investigation of the Causes of Failure in Cow-Pox Vaccination" (THE JOURNAL, May 9, 1914, p. 1466), in which he mentions the successful use of the von Pirquet borer in vaccinating against small-pox, I would call attention to my article on "A Simple Method of Applying the von Pirquet Test" (THE JOURNAL, July 5, 1913, p. 27), which has been used successfully in hundreds of cases. I use the flat end (2 mm. wide) of sterile wooden toothpicks instead of the metal von Pirquet borer. It seems to me that this would be ideal, because the simplest technic of any, for cow-pox vaccination. After the arm is cleansed, the flat end of the sterile wooden toothpick would be dipped in the vaccine and gently pressed on the desired spot on the skin. While the toothpick is held in the middle by the thumb and index-finger, a few turns made by rolling the toothpick to and fro on its own axis between the fingers would result in a neat round abrasion of the epithelium without the appearance of blood. The use of a separate toothpick for each vaccination would insure all the advantages that go with absolute cleanliness and utmost simplicity. LOUIS SHALET, M.D., New York.

Phonograph in Operating-Room

To the Editor:—For some time I have been employing a phonograph in my operating-room as a means of calming and distracting my patients from the horror of the situation when going under the anesthetic and during operations performed partially or entirely with local anesthesia. The phonograph talks, sings or plays on, no matter how anxious, busy or abstracted the surgeon, anesthetist and assistants may be, and fills the ears of the perturbed patient with agreeable sounds and his mind with other thoughts than that of his present danger. Too often when told to keep up an agreeable conversation with our patients operated on under "local," the assistants merely ask again and again if the sufferer is being hurt or if he feels any pain, thus only adding to the self-consciousness of the patient, and, after weather commonplaces are exhausted, it seems impossible to find a topic for conversation of any sort, and dead silence ensues. It is not uncommon for nervous patients to beg to have the phonograph continue, should it run down, and many of them converse animatedly with the anesthetist on the subject of the pieces being played throughout the entire operation.

I owe to Dr. Burdick, our anesthetist, thanks for his selection of records admirably adapted to the tastes and temperament of the subjects.

EVAN O'NEILL KANE, M.D., Kane, Pa.
Surgeon, Kane Summit Hospital.

Cholesterinized Antigens

To the Editor:—In THE JOURNAL, May 9, 1914, p. 1458, there is an article by Dr. Loyd Thompson on the use of cholesterinized antigens in the Wassermann reaction, in which he strongly disagrees with the findings reported by us in a previous article (THE JOURNAL, Jan. 31, 1914, p. 363), asserting that his series of 350 tests is a larger series than ours from which to draw conclusions. As a matter of fact, the number of cases in which Thompson employed the cholesterinized antigen controlled by the syphilitic liver antigen was only 50, as compared with 133 cases in our series. The results given by Thompson, based on examination of 306 cases in which the cholesterinized extract alone was used, obviously furnish no basis of comparison between the merits of the two antigens, and we feel that we should have obtained practically the same results with syphilitic liver antigen. Arguing from Thompson's point of view, we might cite the results of 2,500 cases in favor of syphilitic liver antigen, uncontrolled by cholesterinized extract.

In regard to the suggestion that the discrepancy in the results of Thompson's work and ours may be accounted for in the titration of reagents, we may state that the technic for titration of complement, etc., recommended by Thompson is almost identical with one that has been used by us for over a year, which was presented before the Pathological Society of Philadelphia in January, 1914, and which is in press for publication in an early issue of the *American Journal of the Medical Sciences.*

B. A. THOMAS, M.D., and R. H. IVY, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

OBSTETRIC ANESTHESIA BY SCOPOLAMIN AND MORPHIN

To the Editor:—Can you refer me to any recent article on scopolamin-morphin anesthesia as practiced by Bernhardt Krönig and Karl Gauss at the Freiburg clinic, Baden?

J. P. MCMAHON, M.D., Milwaukee, Wis.

To the Editor:—Is the twilight sleep method of anesthesia in obstetrics by scopolamin and morphin known in the United States as to formula, and does any pharmaceutical house put out the preparation used in the Freiburg clinic in Germany referred to in the June number of *McClure's Magazine?*

What is considered the most up-to-date obstetric anesthesia aside from the use of chloroform and ether?

E. E. SWEENEY, M.D., Grafton, Neb.

To the Editor:—What is the present status of morphin-scopolamin anesthesia among obstetric authorities?

W. O. WILKES, M.D., Waco, Tex.

ANSWER.—Aside from the foregoing, we have received many letters regarding the article referred to. It is extremely unfortunate that a popular magazine such as *McClure's*, the efforts of which in the past in behalf of true medical science have been so influential for good, should have published such a sensational and misleading article without due consideration of its effect on the public. It would seem that the editor of a magazine publishing an article on a scientific subject, especially one discussing such an important subject as this, would consult some competent medical authority as to the underlying facts. The public on reading this article would naturally infer that this method of analgesia was something new. As a matter of fact, our readers of course know that the suggestion for the use of a combination of scopolamin (hyoscin) and morphin was made over 12 years ago, and was put to a pretty thorough test, especially in Germany. While it is not altogether obsolete, it has been practically discarded.

Another natural inference would be that an obstetrician would be negligent of his patients' rights if he withheld the scopolamin-morphin method in his labor cases. The facts are that this method has been thoroughly investigated, tried and found wanting, because of the danger connected with it. Even the most enthusiastic among its German advocates have emphasized its danger, and have stated that it should not be used except in hospitals, where constant, careful watching is possible.

The *McClure's* article seems to have been written, however, especially to emphasize the remarkable results obtained in Freiburg by Krönig and Gauss. As a matter of fact, the Freiburg method differs but slightly from that originally suggested. By the Freiburg method one dose of morphin is given, whereas the scopolamin is repeated as indicated—the indication being, not pain, but memory.

The history of the method is of interest in showing its development. Steinbüchel of Graz began with small doses of

morphin and scopolamin and had no unfavorable results, that is, no dangerous results. Those who followed him used repeated doses of morphin as well as scopolamin—sometimes excessively large doses, with the result that there were serious consequences, particularly the death of the infant. In 1907 a special technic was elaborated by Gauss in the clinic of Krönig at Freiburg in Baden. The technic of Gauss is substantially as follows: The object aimed at is to make the parturient woman forget her pains, although she may be conscious of them at the time; the condition known as "twilight slumber" (*Dämmerschlaf*) is produced. In order to test the mental condition of the patient, she is shown some object and after an interval of about half an hour, this object is again called to her attention. If she remembers having seen it before, she is not sufficiently amnesic, and an additional dose of scopolamin is given. It should be remembered that the method of Gauss is not correctly represented by the frequent recommendations to use scopolamin-morphin for the relief of pain in labor. Let it be emphasized that but a single dose of morphin is used. In this way the frightful mortality that occurs in infants from morphin injections is largely eliminated.

Scopolamin also has its own dangers. Small doses sometimes produce very serious results. There may be great disturbances of the nervous system, or of the heart and lungs. It is impossible to predict when these results may follow its administration and they cannot be guarded against. Proprietary preparations containing fixed quantities of the two alkaloids cannot be successfully used to secure the results desired.

The impression gained from a review of the literature is that the present method of obstetric anesthesia by scopolamin and morphin is not safe for the child and not always safe or successful for the mother. The time may come when the hope expressed in 1911 by Lequeux may be fulfilled, that further clinical investigations cautiously conducted will secure a harmless agent with which to lessen or abolish altogether the pains of labor; but that time has not yet arrived.

The following are references to some of the more important studies of this subject:

Flatau, S.: Ueber die Anwendung der Morphium-Scopolamin Narkose in der Gynäkologie, *München. med. Wchnschr.*, 1903, No. 28, abstr., THE JOURNAL, Aug. 22, 1903, p. 528.

Steinbüchel, von: Scopolamin-Morphin in Obstetrics, *Centralbl. f. Gynäk.*, 1902, No. 48; abstr., THE JOURNAL, Jan. 10, 1903, p. 133.

Gauss, C. J.: Scopolamin-Morphin Anesthesia in Labor, *Arch. f. Gynäk.*, 1906, lxxviii, No. 3; abstr., THE JOURNAL, July 7, 1906, p. 77.

Wood, H. C., Jr.: Comparative Danger of Scopolamin-Morphin Anesthesia, *Am. Med.*, December, 1906; abstr., THE JOURNAL, Feb. 2, 1907, p. 454.

Hocheisen: Geburten mit Scopolamin-Morphium (Childbirths), *München. med. Wchnschr.*, 1906, liii, No. 37; abstr., THE JOURNAL, Dec. 1, 1906, p. 1862.

Gauss, C. J.: Technic of Scopolamin-Morphin Anesthesia in Obstetrics, *Centralbl. f. Gynäk.*, 1907, xxxi, No. 2; abstr., THE JOURNAL, March 9, 1907, p. 912.

Gauss, C. J.: First Thousand Childbirths Under Scopolamin-Morphin, *München. med. Wchnschr.*, 1907, liv, No. 5; abstr., THE JOURNAL, March 16, 1907, p. 983.

Steffens, W.: Deliveries Under Scopolamin-Morphin, *Arch f. Gynäk.*, 1907, lxxxi, No. 2; abstr., THE JOURNAL, May 25, 1907, p. 1821.

Krönig, B.: Painless Delivery Under Scopolamin-Morphin, *Deutsch. med. Wchnschr.*, 1908, xxxiv, No. 23, abstr., THE JOURNAL, July 11, 1908, p. 175.

Kleinertz, F.: Delivery Under Scopolamin-Morphin, *Ztschr. f. Gynäk.*, 1908, xxxii, No. 42; abstr., THE JOURNAL, Nov. 21, 1908, p. 1827.

Hatcher, R. A.: Scopolamin-Morphin in Narcosis and in Childbirth, THE JOURNAL, Feb. 12, 1910, p. 516. Feb. 5, 1910, p. 446 and

Lequeux, P.: Résumé of Recent Literature on Scopolamin-Morphin Anesthesia in Obstetrics, l'Obstétrique, February, 1911.

STEROLS AND THE BIOCHEMISTRY OF BACTERIA

To the Editor:—In your Current Comment last week on "The Biochemistry of Bacteria" (THE JOURNAL, May 30, 1914, p. 1730, you speak of "sterols." Can you give a clearer definition of this term? You speak of cholesterol as being a familiar example of sterols. What relation does cholesterol bear to sterols? Are they chemical derivatives or are they related by their physical properties? I am trying to keep up with the progress medicine is making, but find it difficult to do so when words like this are used that do not appear in the dictionaries.
J. H. S.

ANSWER.—When animal tissues are extracted with ether they yield to this solvent a mixture of true fats along with that heterogeneous group of substances at present familiarly known as "lipoids." If the ether extract is saponified with an alkali there remains, admixed with the soaps and other products formed in the reaction, an unchanged substance at one time called a "non-saponifiable" fat, and better known as cholesterin. This is a monohydric alcohol of the formula $C_{27}H_{45}OH$; its exact constitution is still unknown, although a great deal of research has been devoted to it. In conformity with modern nomenclature in organic chemistry, whereby the alcohols receive the ending "ol," the compound just referred to is now as a rule spoken of as cholester*ol*, precisely as one alludes to the alcohol phen*ol* or cres*ol*.

While cholesterol has been isolated uniformly from the tissues of mammals and birds, whenever the lipoid bodies contained in them have been investigated, with one or two exceptions no other substance similar to it had, until quite recently, been discovered in animal protoplasm. From the vegetable kingdom, on the other hand, a large number of bodies, isomeric with and no doubt closely related to, cholesterol, have been obtained—the phytosterols. Although recent observations show that the number of these is perhaps not so great as was at one time supposed, owing to the fact that many of the products described under different names are mixtures of phytosterols, nevertheless not only do many substances of this general type exist, but frequently, different forms occur in the same plant, each associated with one or other of the plant structures.

More recently the study of the distribution of these non-saponifiable ether-soluble products has been extended to include all orders of animals from the chordates to the coelenterates. The results indicate that the protoplasm of all animals examined, and, therefore, probably of all animals, contains at least one member of the cholesterol family. The individual products isolated, differing in certain undeniable physical and chemical properties such as crystalline form, melting points, etc., have been variously named, usually to indicate their origin in nature. Thus we have sitosterol, bombicesterol, clionasterol and coprosterol, among others. To give some inclusive or generic name to cover all of these varied evidently related substances derived from animals and plants, the word "sterin," or better, "sterol," has been adopted of late. The sterols have, in turn, been classified by Dorée (*Biochem. Jour.*, 1913, vii, 618) into zoosterols (from animals), phytosterols (from plants) and matasterols the latter common to animals and plants. For a recent review of the subject the reader is referred to Windaus: Die Sterine, in Abderhalden's Biochemisches Handlexikon, iii, 268, and to the paper of Dorée mentioned above.

STATES RECIPROCATING WITH NEW YORK

To the Editor:—Please inform me with what states New York has reciprocal relations.
C. J. B.

ANSWER.—New York has established reciprocal relations with Delaware, Indiana, Michigan, New Jersey, Ohio, Utah and Wisconsin.

BAELZ' DISEASE

To the Editor:—A patient came to me with what I diagnosed as eczema of the lip. There is no history of syphilis. He had been told by a physician that it was Baal's disease and that it was very rare. As I can find nothing in regard to this rare disease in my text-books, will you please inform me?
M. F.

ANSWER.—"Baal" is probably a misspelling of "Baelz." Baelz' disease is a form of cheilitis glandularis or myxadenitis labialis. It is described by Unna in an article "Ueber Erkrankungen der Schleimdrüsen des Mundes" (*Monatsh. prakt. Dermatol.*, 1890, xi, 317).

It is an inflammation of the mucous glands of the lip and the periglandular tissue, affecting chiefly the lower lip. In Unna's cases the mucous glandular swelling went on to pronounced suppuration, crusting and ulceration and then cicatrization. Unna found that local treatment with tincture of iodin acted as a specific, improvement ensuing immediately.

CRITICISM OF PRESCRIPTION

To the Editor:—Please explain to me what should be the result of the following combinations:

Phenacetin	gr. ix
Codein sulph.	gr. ½
Aspirin	gr. vi
Sugar of milk	gr. vi

Take with glass of water three times a day.
P. J. B. LEBLANC, M.D., Fairbanks, Alaska.

ANSWER.—There is no chemical or physiologic incompatibility in this prescription. The remedies are synergistic and the doses, though rather large, are not above what might be given in some cases.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

A LAYMAN'S VIEW OF OSTEOPATHY

A bill giving osteopaths all the rights of regularly qualified physicians recently passed the New York legislature and was sent to Governor Glynn for signature. He held a hearing on the bill, April 13, at which Mr. Abraham Flexner, one of the secretaries of the General Education Board, presented a statement of the present condition of osteopathic schools, as found by a personal inspection of them. Mr. Flexner's statement is of value as showing the fallacy of the educational and scientific claims of osteopathy. Mr. Flexner said:

"Your Excellency, as you doubtless know, I am not a physician. I have no practice to protect, and no particular school of medicine to defend or apologize for. I am in the exceptionally advantageous position of having freely criticized medical schools of all denominations. This criticism was based on a study of medical education in the course of which I visited every medical school in the United States and Canada, and saw every nook and corner of them. Subsequently I visited not all, but most of the medical schools in Europe.

"The general difference between the osteopathic schools, as I found them in 1909 and 1910, and the other medical schools is this: Among regular and homeopathic medical schools there were some good and some bad. The osteopathic schools were all bad.

"The gentlemen who will be privileged to practice medicine in the state of New York, if your Excellency signs this bill, were graduates of the eight osteopathic schools which I visited in 1909 and 1910, having all graduated previously to my visit and under conditions that were probably worse than those which I saw during that time.

"I wish now to describe to you, school by school, exactly what I observed at that time. We will assume that the schools as they passed through them were as good as they were when I visited them.

"In the first place, I have here the catalogues of all those schools of the years 1909 and 1910, just about the time when I visited them, and a little subsequently to the time during which these gentlemen passed through them.

"The most striking general characteristic of the schools at that time was their outspoken and purely mercenary character. Without a single exception they were conducted, and very efficiently and energetically conducted, as business enterprises for the making of money.

"You will see in a moment, when I come to speak of the entrance requirements, that the entrance requirements were so low that practically anybody might enter them on application. In order to get large numbers of students of this low academic grade, the schools indulged not only in all kinds of undignified advertising, but circulated the catalogues, which I have here, and which were intended to be simply an appeal to crude commercial interest. I am going to quote you something from each of these catalogues.

"The following is from the catalogue of one of the Los Angeles schools:

"'People are ready to pay for relief from distress and sickness. Many of our graduates are earning as much in a single month as they were formerly able to earn by a full year's work. Ninety-seven per cent. of all our graduates of the past are to-day earning their living in the practice of osteopathy. We mention these facts because the uninitiated young man or woman is entitled to know.'

"Again, later:

"'Prospective students may be sure of employment during their leisure hours.' (You can imagine how much of leisure a two-year course should allow!) 'Any young man or woman who is able to arrange for the tuition can master the course. Osteopathic treatments are given to students without expense. The saving in bills for treatment has in some cases more than covered the cost of tuition.'

"There is a second Los Angeles school called the Pacific College, from the catalogue of which the following is taken:

"'It is safe to say that in no case has a competent osteopath made a failure in his attempt to build up a paying practice. His remuneration, counted in dollars, would be greatly in excess of what he could expect to receive in most other lines of professional work.'

"From the Des Moines school catalogue is taken the following:

"'The profession will yield better returns than any other profession.'

"This, from the Philadelphia school catalogue:

"'A lucrative practice is assured to every conscientious and capable practitioner.'

"From the Massachusetts school is the following:

"'Osteopathic students can step at once into a paying practice. Seventy per cent. of the graduates of osteopathic colleges succeed financially, while only 7 per cent. of those from other medical colleges are thus successful. Osteopathy is one of the best-paid professions in the world to-day. Any one who is dissatisfied with his or her calling in life might well consider osteopathy. The rewards are many and adequate. Financially, a three years' course in osteopathy is an exceedingly good investment. The Massachusetts College of Osteopathy graduate who does not make as much as the total cost of his osteopathic education in his first year of practice is in exception. What other investment can possibly be made that will yield 100 per cent. or more first year out, and at least as much as that each year thereafter?'

"From the Central College in Kansas City:

"'The average osteopath has a better practice than ninety out of every hundred practitioners. The young osteopath builds up a practice in less time than the regular practitioner.'

"This, then, is the nature of the appeal, your Excellency, addressed to the kind of candidate that I am now going to describe to you.

"Medical schools offer, including osteopathic schools, instruction in anatomy, chemistry, physiology, pathology, surgery, obstetrics, and so on. In order to be sure that students will be able to grasp such difficult and exacting subjects, it is necessary, and has been found necessary in all states, to insist on a minimum academic preparation.

"The preparation in the state of New York now is, at the very least, a four-year high-school course, which shall include a year each in chemistry, physics and biology.

"Now I am going to read you the entrance requirements in the various osteopathic schools as I found them in 1909 and 1910, about the time when the gentlemen who will be beneficiaries of this law if signed were graduated. The following is from the catalogue of the Los Angeles school:

"'In order to be admitted to this school, a student must show evidence of proper training' (I call your attention to the fact that it does not provide submission to an examination) 'in English, mathematics, history, geography'—that is to say, less than a common-school education.

"'Moreover' (and this is a verbatim quotation), 'candidates found deficient in one or more of these four subjects may be admitted on condition.'

"That is, there was no academic requirement whatsoever for admission to the Los Angeles school at the time of my visit. Anybody who could pay the fees went in.

"The following is from the Des Moines school:

"'Evidence of proper training in English grammar, arithmetic, U. S. history, geography and elementary physics.'

"Evidently, very elementary physics, since it was only such physics as might be taught to a student whose mathematical knowledge consisted in knowing simple arithmetic.

"The following is from the Philadelphia school:

"'Candidates for admission must have good moral character, good health, and student qualities.'

"Any kind of a credential was at that time accepted there, and no examination was required. The specifications in the catalogue were as vague as those I have quoted.

"The following is from the Massachusetts school:

"'Evidence of proficiency, but no examination, in spelling, punctuation, arithmetic, history, geography and the elements of physical science.'

"The following is from the Kirksville school, which is the parent school. By the way, Kirksville

"'. . . is commended to the prospective student on the ground that Kirksville is the home of osteopathy, with a good business college, three newspapers, two first-class hotels, scores of boarding-houses, five livery and feed stables, a steam laundry, three planing-mills, a shoe factory 700 by 300 feet in dimensions, many residences heated by hot water, and last and by no means least local option adopted by a two-thirds majority. . . . In order to enter this school the student must know English grammar and composition, rhetoric, arithmetic (including compound numbers and percentage) history and geography.'

"But if he fail to satisfy these exacting requirements, the student may be admitted without them.

"The following is from the Central College at Kansas City:

"'Students must furnish creditable evidence of a good moral character and of practical training in the common branches.'

"In other words, there was not a single osteopathic school in the country that had any definite entrance requirements whatsoever. How can this state, having set up a standard and forced compliance therewith, open the doors to low-grade osteopathic graduates from other states less intelligently governed?

"Again, in respect to their facilities for teaching: If you will consult the catalogues, you will see that all these schools make a pretense of teaching all the laboratory branches required in the most exacting schools. And of course it is obviously necessary, in order to make a diagnosis, that the physician, to be a good osteopath, should understand chemistry, physiology, pathology, and anatomy especially, as it is the backbone of their science. At the time I visited these schools, not a single osteopathic school in the country possessed a decent laboratory in any subject, not even in anatomy.

"I will read to you, taken from my note-book which I have here, and which I shall be glad to leave with you, my description of the laboratory equipment of these schools, notes made as I passed from room to room under the chaperonage and guidance of one of the instructors, or the dean.

"The first one is the Des Moines school, and is as follows:

"'The laboratory outfit is almost altogether made up of signs. There was a room with "anatomy" painted on the door which proved to be an empty amphitheater. There was a room with the word "physiology" painted on the glass door, which turned out to be a practically empty class-room with a few chairs and a few things in a book-case and no laboratory equipment whatsoever. A room marked "chemistry" was a disorderly and disarranged room with less equipment than would be needed in an elementary high school to teach chemistry. There were two or three incubators in the same room. There was another room marked "histology," which was locked, and nobody on the premises had a key to it. It was claimed that there were forty microscopes on the inside. There was also an "anatomy" room, which was a dirty and disorderly dissecting-room, in which there was an uncovered vat containing a single soaking body, party dissected and decaying. One or two tables apparently were in use in that room. On the floor back of the office there was also a room marked "Physics," the sole outfit of which was a friction electric machine. This room was not a class-room. This, then, was the laboratory equipment used in teaching 115 students.'

"The Littlejohn College of Osteopathy, which I think now is called the Chicago College, was visited. There were a number of absolutely bare class-rooms. No laboratories were in use at the time of my visit, because the college was undergoing expansion, and all the laboratories had been dismantled except the chemical laboratory, which had a simple equipment. When I suggested that perhaps all laboratory instruction had been temporarily suspended owing to the necessities of reconstruction, I was assured that that was not the case.

"In the Philadelphia school I found that each class has a separate room, all subjects taken by the class being apparently taught in that room. Instead of having rooms for anatomy, physiology, and so on, there was a room for seniors, sophomores, juniors, etc. This arrangement stamped it at once as simply a didactic school. The freshman room was bare, except for a few crude drawings, a case of bones, a model and a skeleton. There was another room in this school called the junior room, which was practically the same, with the exception that there were no bones in it.

"Then there was another room not designated as belonging to any special class, in which there was a stereopticon. There was also a histological laboratory with a small centrifuge and an invisible microscope. A small chemical laboratory was found in a dark and dingy cellar. There was absolutely no provision whatsoever for pathology, physiology or bacteriology, no museum and no books. There was a dissecting room, however, in a dark old stable in a horrible condition.

"The Kansas City school was called the Central College. At this school I found a small and very meager laboratory in chemistry. There was no other laboratory equipment worthy the name, not even in anatomy. The teacher of anatomy told me that students ought to know anatomy before dissecting. One body had been obtained in September and had been used up. Another was expected in February. When I asked the teacher in anatomy how he taught anatomy without a body, he said it was a simple matter; that if they taught a student anatomy before he began to dissect, his progress was quicker, and that therefore they had no use for a body at that time.

"I now come to the Kirksville school, which is the most pretentious and largest of them all, having almost six hundred pupils. There I found one room which was used for short six-week courses in bacteriology and physiology, in which thirty-two persons could be accommodated. There was one preparation room which was used for all laboratory subjects. The school was owned by two doctors who were more interested in fine cattle than in good school equipment. It had proved a very profitable investment, and the profits are invested, so I was informed by the people there, in a splendid stock farm. In the school there were four lecture-halls absolutely bare except for chairs; one small but fairly well-equipped chemical laboratory; a simple dissecting-room; a laboratory for histology and pathology, but no museum, and no gross pathological material.

"The Cambridge, or Massachusetts, School of Osteopathy had one small laboratory for pathology, bacteriology and histology, and one for chemistry. It had no laboratory for physiology, no museum, no books, and anatomy had been postponed one month on account of lack of available material.

"I think it is perfectly safe to say that on the laboratory side, the very worst regular homeopathic medical schools in the United States were at least as good as the best osteopathic schools at that time, and that regular and homeopathic schools of that type would have absolutely no standing before the Board of Regents of New York.

"As to clinical conditions: The backbone of the medical school is its clinical opportunities. Let me describe to you what existed at that time in this direction:

"*Kansas City.*—The school had absolutely no hospital facilities of its own, and no clinical connection where students could be taught. By paying a five-dollar fee its students were able to attend city hospital clinics given by the regular medical college. There was a small dispensary operated at the college, at which patients paid for the treatment they received. Practically, therefore, there were no clinical facilities whatsoever.

"*Kirksville.*—The parent school, with practically six hundred students at the time I visited it, had a hospital with fifty-four beds, most of them containing the surgical cases operated on in the good old way, with the knife, despite the fact that osteopathy is 'drugless and knifeless healing.' There were very few obstetrical cases, but a large dispensary where most of the treatments were paid for by the patients.

"*Philadelphia College.*—Here the clinical facilities consisted of a small hospital several blocks away from the school building, containing three beds. The catalogue states that the students have the privilege of witnessing operations at the University and Jefferson hospitals, performed by regular surgeons, the former belonging to the University of Pennsylvania and the latter belonging to the Jefferson Medical College. I made inquiries at both these institutions, and was told that the statement printed in the catalogue is untrue, and that any student of the Philadelphia College of Osteopathy who penetrated into these clinics was an intruder and a trespasser without rights or privileges of any kind.

"*Massachusetts.*—This school had clinical facilities at the Chelsea Hospital, a pay institution of less than fifteen beds and over an hour's journey from the college building.

"*Des Moines.*—This institution at the time of my visit to it had no hospital of any kind whatsoever, but I was told there was a pay hospital to be opened there shortly.

"*The Los Angeles College.*—This school also had a small pay dispensary, and a pay hospital under construction, which I presume has since been opened.

"The second Los Angeles college, the so-called Pacific College, had a hospital which it claimed as its own, and which is made much of in the catalogue. But I found, on closer inquiry, that students had no access to it.

"So that, on the clinical side, as on the laboratory side, these gentlemen have had practically a didactic training on an educational basis amounting to less than a common-school education.

"Now, if this bill is signed, these gentlemen will have the privilege of practicing in the state of New York precisely as though they had been graduated from institutions which maintain under the strict scrutiny of the State Department of Education a high entrance basis, and which are required by the State Department of Education to maintain expensive laboratories and elaborate clinics.

"Aside from the specific question here involved and aside from the discussion we heard up-stairs on Christian Science, there is a much wider question involved, namely, What is the duty of a modern state in respect to medical education?

"We have, with great difficulty, in the face of great opposition, and with an enormous expenditure of money and effort, built up in the state of New York a structure which makes

New York perhaps at this moment the best protected state in the Union in respect to sanitation and public health.

"The state of Illinois, the virtues of which were commended to us by an eloquent orator a few moments ago, is one of the least enviable in the Union, in this regard. There is more quackery rampant in the city of Chicago than in any other city in the Union.

"This is not a question of personal liberty. A modern state does not regulate its technical affairs by means of universal suffrage. In regard to the conservation of life and health, it is the function of the modern state to inquire into and to ascertain what is the best thing that can possibly be done. Having ascertained that, the state, for the benefit of those directly and indirectly affected, insists that we must all drink pure water, must notify the authorities of infectious diseases, and have well-ventilated and wholesome factories; these things are best for those immediately concerned and best in the long run for the entire community.

"That is the real question at issue in all this legislation. It is not a question of individual liberty. It is a question of the state using its statutory powers for the benefit of those who are in no position to protect themselves. The state must forbid the practice right to healers and untrained osteopaths for fear that the ignorant and misguided may injure themselves and others."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 14. Chairman, Dr. W. H. Sanders, Montgomery.

ARIZONA: Phoenix, July 7-8. Sec., Dr. John Wix Thomas, Phoenix.

CALIFORNIA: Los Angeles, June 16. Sec., Dr. C. B. Pinkham, 135 Stockton St., San Francisco.

COLORADO: Denver, July 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven, July 14-15. Sec., Dr. Chas. A. Tuttle, New Haven. Homeopathic: New Haven, July 14. Sec., Dr. Edwin C. M. Hall, New Haven. Eclectic: New Haven, July 14. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

DELAWARE: Dover and Wilmington, June 16-18. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Palatka, June 17-18. Sec., Dr. E. W. Warren, Palatka.

INDIANA: Indianapolis, July 14-16. Sec., Dr. W. T. Gott, State House, Indianapolis.

IOWA: Iowa City, June 11-13. Sec., Dr. Guilford H. Sumner, State House, Des Moines.

KANSAS: Kansas City, June 9-12. Sec., Dr. H. A. Dykes, Lebanon.

KENTUCKY: Louisville, June 15-17. Sec., Dr. A. T. McCormack, Bowling Green.

MAINE: Augusta, July 7-8. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MARYLAND: Baltimore, June 15. Regular Board: Sec., Dr. J. McP. Scott, Hagerstown. Homeopathic: Baltimore, June 15. Sec., Dr. O. N. Duvall, 1817 N. Fulton Ave., Baltimore.

MICHIGAN: Ann Arbor, June 9. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MISSISSIPPI: Jackson, June 16-17. Sec., Dr. E. H. Galloway, Jackson.

MISSOURI: St. Louis, June 15-17. Sec., Dr. J. A. B. Adcock, Jefferson City.

MONTANA. Helena, June 30-July 2. Sec., Dr. Wm. C. Riddell, Helena.

NEW HAMPSHIRE: Concord, July 1-2. Regent, Mr. H. C. Morrison, Concord.

NEW JERSEY: Trenton, June 15-16. Sec., Dr. H. G. Norton, 429 E. State St., Trenton.

NEW MEXICO: Santa Fe, July 13. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: June 23-26. Chief of Examinations Division, Mr. Harlan H. Horner, Department of Education, Albany.

NORTH CAROLINA: Raleigh, June 9. Sec., Dr. Benj. K. Hays, Oxford.

NORTH DAKOTA: Grand Forks, July 7. Sec., Dr. G. M. Williamson, Grand Forks.

OKLAHOMA: Oklahoma City, July 14. Sec., Dr. John W. Duke, Guthrie.

OREGON: Portland, July 7-9. Sec., Dr. L. H. Hamilton, Medical Bldg., Portland.

RHODE ISLAND: Providence, July 2-3. Sec., Dr. Gardner T. Swarts, State House, Providence.

SOUTH CAROLINA: Columbia, June 9. Sec., Dr. A. Earle Boozer, 1802 Hampton Ave., Columbia.

SOUTH DAKOTA: Deadwood, July 14. Sec., Dr. Park B. Jenkins, Waubay.

TEXAS: Austin, June 23-25. Sec., Dr. W. L. Crosthwait, Waco.

UTAH: Salt Lake City, July 6-7. Sec., G. F. Harding, 405 Templeton Bldg., Salt Lake City.

VIRGINIA: Richmond, June 23-26. Sec., Dr. Herbert Old, Norfolk.

VERMONT: Burlington, July 14-17. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Seattle, July 7. Sec., Dr. C. N. Suttner, Baker Bldg., Walla Walla.

WEST VIRGINIA: Elkins, July 1. Sec., Dr. S. L. Jepson, Wheeling.

WISCONSIN: Milwaukee, June 29. Sec., Dr. John M. Beffel, 3200 Clybourn St., Milwaukee.

WYOMING: Laramie, July 9-11. Sec., Dr. H. E. McCollum, Laramie.

The Eighth Report of the Carnegie Foundation for the Advancement of Teaching

The eighth annual report of the president of the Carnegie Foundation for the Advancement of Teaching, recently made public, shows a total endowment of $15,325,000, and an expenditure for the year ending Sept. 30, 1913, of $658,431. Of this $519,440 were distributed in retiring allowances to professors, and $80,949 in pensions to their widows, a total of $600,390. Thirty-three allowances were granted during the year, making the total in force 403, the average annual payment to an individual being $1,703. The total distribution from the beginning has been $2,936,927. The educational work of the foundation was separately endowed in January, 1913, by a gift of $1,250,000 from Mr. Carnegie through the Carnegie Corporation of New York. This body, which is endowed with one hundred and twenty-five million dollars for "the advancement and diffusion of knowledge and understanding," has five ex-officio trustees, of whom one must always be the president of the Carnegie Foundation for the Advancement of Teaching.

The study of legal education has been begun by a first-hand inquiry into the bar examinations of every state, a special study of legal teaching by Josef Redlich, who came from Vienna for the purpose, and by a personal examination of each of the 160 law schools in the country. Plans for the study of engineering education are now being completed. The earlier educational work of the foundation is continued in the report by commendation of the present tendency of college entrance requirements toward both elevation and flexibility. The need for further improvement is shown by the fact that only 55 per cent. of the students now in our colleges are high-school graduates. The decrease in the number of medical schools in the country and the rapid improvement of the better schools are commented on with appreciation. A general study of the problems of the state regulation of higher education is illustrated by a detailed account of the recent crisis in educational affairs in Iowa.

Tennessee Reciprocity Report

Dr. A. B. DeLoach, secretary of the Tennessee State Board of Medical Examiners, reports that 17 candidates were licensed through reciprocity from Jan. 15 to Dec. 23, 1913. The following colleges were represented:

College	Year Grad.	Reciprocity with
Columbian College, Washington, D. C.	(1903)	Kentucky
Atlanta School of Medicine	(1911)	Georgia
Georgia College of Eclectic Med. & Surg.	(1912)	Georgia
Northwestern University	(1908)	Minnesota; (1911) Georgia
Kentucky School of Medicine	(1896)	W. Virginia
Louisville and Hospital Medical College	(1908)	Oklahoma
University of Louisville	(1911)	Kentucky; (1911) Kentucky
University of Maryland	(1909)	Maryland
University of Michigan, Dept. of M. & S., Michigan	(1894)	Michigan; (1897)
University of Pennsylvania,	(1907)	North Carolina; (1908) Virginia; (1911) Maine.
Chattanooga Medical College	(1907)	Virginia
University of Nashville	(1900)	Mississippi

District of Columbia January Report

Dr. George C. Ober, secretary of the Board of Medical Supervisors of the District of Columbia, report the oral and written examination held Jan. 13-15, 1914. The number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 10, of whom 7 passed and 3 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent.
Georgetown University	(1913)	85.3, 91.4
Howard University	(1913)	75.8
American Medical Missionary College	(1904)	78.4
University of Illinois	(1913)	83.4
Baltimore Medical College	(1913)	80.9
Jefferson Medical College	(1905)	76.8
FAILED		
Maryland Medical College	(1913)	70.8
College of Physicians and Surgeons, Boston	(1911)	68.7
Leonard Medical School	(1913)	62.2

Book Notices

DEFECTIVE OCULAR MOVEMENTS AND THEIR DIAGNOSIS. By E. and M. Landolt. Translated by Alfred Roemmele, M.B., Ch.B., and Elmore W. Brewerton, F.R.C.S. Cloth. Price, $2. Pp. 99, with 27 illustrations. New York: Oxford University Press, 1913.

In this small volume the authors have succeeded in presenting the essential known facts of this important, and at the same time difficult, branch of ophthalmology. A great deal has been written on this subject, and in this book the authors have not presented any new facts or proposed any new theories, but have endeavored to group the facts which are absolutely necessary for the correct understanding of oculomotor affections, particularly those which are apt to be overlooked by the general practitioner, as a correct analysis of the various forms of oculomotor disturbances is of the highest importance in diagnosing the different diseases of the brain and nervous system. Not the eyes alone but the entire nervous system must always be taken into account in oculomotor affections. After a brief summary on the fundamental laws governing the normal eye movements, with the anatomy and physiology of the ocular muscles, a few pages are given to the practical application of prisms, and the remainder of the book is devoted to the pathology of the different forms of oculomotor disturbances with their symptoms and diagnosis. Contrary to the method usually adopted in text-books, of enumerating the various diseases and then describing their symptoms, the authors have done just the reverse, beginning with the symptoms and then leading up to the disease which causes them. It is really thus, as the authors state, that the problem presents itself to us in practice. The patient does not come with the name of his disease, asking for the symptoms; he relates his symptoms and we should from them diagnose the disease and deduce the nature and seat of the lesion. The section on the differential diagnosis of paralysis of individual ocular muscles is admirably stated. The classification of the different rotations of the eye as brought out by the double images is easily comprehended, especially if one has familiarized himself with Duane's table. The latter part of the book, which deals with the seat and etiology of the oculomotor affections, gives the essential facts of each case, so far as they are known, clearly and briefly. The authors are to be congratulated on having given to the busy ophthalmic surgeon this *multum in parvo*, which will serve him, as they say, not as a hand-book, but rather as a handy book.

PRINCIPLES OF SURGERY. By W. A. Bryan, A.M., M.D., Professor of Surgery, Vanderbilt University. Cloth. Price, $4 net. Pp. 677, with 224 illustrations. Philadelphia: W. B. Saunders Company, 1913.

This book, dedicated "to the men I have taught," presents to the student, or practitioner in need of "brushing up," the fundamentals of surgery and especially surgical pathology in a simple, logical manner. The individuality of the teacher is reflected in his writings, at the same time he is fair in his dogmatism. While objecting to the so-called non-absorbable sutures, he admits their harmlessness in intra-abdominal work and also concedes the fact that catgut becomes an excellent culture-medium for bacteria. The chapter on inflammation is particularly complete. Its explanations really explain, and should be of great help to the busy practitioner. The dictum, "no anodynes until the diagnosis is clear and the patient has agreed to the employment of safe means for his relief," cannot fail to impress the student. In the chapter, in which the treatment of sepsis is discussed, the author warns that "purgation of an exhausted patient can prove quickly fatal. The only safe route of elimination should be by the kidneys, and the remedy is water." In the chapter on tetanus he omits to mention the use of magnesium sulphate injections, apparently favoring Bacelli's intravenous injections of phenol (carbolic acid). Absolute non-interference of anthrax lesions and reliance on serum treatment are plainly urged. In the chapter on wounds, the author teaches that infection develops more readily in contused wounds than in any other type, on account of extensive devitalization. One must object to his advising a thorough scrubbing of a second degree burn with brush, soap and water; such statements are not modern. He also fails to mention the "open-air" treatment of burns. The classification of tumors and the surgical pathology are an admirable summary of the entire subject as at present understood. Regarding uterine myomas the author correctly states that "the old belief that they disappear at the menopause is untrue and dangerous. The danger of malignancy, though small, must not escape us." Writing on sarcoma, he warns us that "many of the notions held by some of the profession are due to ancient teachings that have been handed down from generation to generation, without an attempt to correct them in accordance with the advances made by pathologic study and clinical observation of patients before and after treatment, and by our ability to make accurate diagnoses, microscopically, long before a clinical diagnosis could be vouchsafed. Hence much that is untrue is still accepted and occasionally acted on as true.

THE BIOLOGY OF THE BLOOD-CELLS WITH A GLOSSARY OF HEMATOLOGICAL TERMS. For the Use of Practitioners of Medicine. By O. C. Gruner, M.D., Pathologist to the Royal Victoria Hospital. Cloth. Price, $6 net. Pp. 392, with 75 illustrations. New York: William Wood & Co., 1914.

"This work is intended to serve as a companion to any of the larger text-books on hematology. Special stress has been laid on the close relationship between changes in the blood-forming organs and the blood-picture as the clinician sees it, and also on the minute morphology of the various blood-cells, whether sessile or free-floating."

In these days the study of the development of the various types of cell seen in the circulating blood is assuming increased importance, owing largely to the epoch-making studies of Pappenheim and his followers. The proper interpretation of the presence of unusual cells or of variations in the number and kinds of normal blood-cells in the blood-picture of any disease may be made only when a thorough knowledge of the origin and developmental cycle of such cells is at hand. Gruner has attempted to present his material in such a way that the reader is led by gradual steps to a complete familiarity not only with the origin and development of the various cells, but also with the hematopoietic mechanism which leads to the appearance of abnormal cells in the peripheral blood. That he has accomplished his object in a thoroughly convincing manner is evident from a perusal of the work. The subject-matter of the book is divided into seven chapters, on the primordial blood-cell, the red blood-cell, the lymphocyte, the large mononuclear leukocyte, the neutrophil leukocyte, phlogocytes, and the cystoplastic phenomena of blood-forming tissues. Each of these chapters is written in such a clear and concise manner that the reader has no difficulty in grasping the various points dealing with the developmental and morphologic characteristics of the cells discussed. The glossary of terms at the end of the book is very complete and deserves special mention and reference. This book is one which should be in the library of all who have an occasion to examine blood-smears, and should be carefully studied by those who wish to enlarge their knowledge regarding the interpretation of the blood-findings in various diseases. It gives a thorough and convincing exposition of the accepted biologic theories of the origin and development of the blood-cells.

LES TECHNIQUES ANATOMO-PATHOLOGIQUES DU SYSTÈME NERVEUX: ANATOMIE MACROSCOPIQUE ET HISTOLOGIQUE. Par Gustave Roussy, Chef des Travaux d'Anatomie Pathologique à la faculté de Paris, and Jean Lhermitte, Ancien Chef de Laboratoire à la Faculté de Médecine de Paris. Cloth. Price, 5 francs. Pp. 255. Paris: Masson et Cie, 1914.

This little book contains a selected list of methods, which have been personally tested by the authors, for the gross and microscopic study of the nervous system in both normal and pathologic conditions. The selection is in general judicious and the directions clear; there are some few methods described and some remarkable omissions (for instance, no mention whatever of the Golgi method). It is a practical working manual, adapted for the needs of the beginner. "It is not a book for the library; its place is on the laboratory table beside the fixing fluids and stains."

Miscellany

Proteoses and Fever

Experiments calculated to show a relationship (should any such relationship exist) between the injection of proteoses into the animal organism and the development of fever symptoms are reported by Gibson in the *Philippine Journal of Science*, viii, B, p. 475. These experiments were undertaken on account of the conflicting views and theories of previous workers and because of their bearing on "peptone intoxication" and anaphylactic shock and the relation of these to the development of fever symptoms.

Von Pirquet and especially Friedberger have developed the theory that the phenomena of anaphylaxis play an essential part in the production of the symptoms observed in the contagious diseases. The symptoms declare themselves when the antibodies, elaborated by the organism, begin to react with the microbes. Mita and Friedberger have shown a relationship of fever in infections to anaphylaxis. These authors assert that the injection of minute amounts of foreign protein into guinea-pigs sensitized to that protein produces a marked rise in temperature following the characteristic fall. Successive injections yield temperature curves very similar to those of infectious fevers. In anaphylactic shock the symptoms resemble those which obtain during the intoxication resulting from intravenous injection of proteoses. There seems to be evidence also that the formation of anaphylatoxin is associated with the cleavage products of the protein antigen. Pyrexial action is asserted for proteoses prepared in the laboratory as well as for those elaborated by bacteria, both intracellular and extracellular substances so elaborated. If the extracellular substances are precipitated by alcohol or ammonium sulphate and injected into guinea-pigs, they excite fever. Such injections are more pyrogenic for tuberculous animals than for normal ones. When the proteoses are prepared in the laboratory they are not so pyrogenic in their action as those of bacterial origin. Klemperer considers that the cause of fever in such cases is not the introduction of proteoses but rather impurities of bacterial origin. Recently, Bordet has questioned the identity of anaphylaxis and "peptone" intoxication. He concludes from his experiments that there is not just ground for the theory of the production of poison by digestion and disintegration of the antigen. Loewit also believes that there is insufficient evidence for believing that anaphylactic shock and the "peptone" shock are identical. Auer and Van Slyke also bring forward additional evidence that the anaphylactic shock is not due to proteoses. The question of importance at this point is, whether the symptoms of "peptone" intoxication are due to the proteoses injected or to some substance which is physiologically active. Pick and Spiro have concluded that these effects are due to some substance of animal origin. Underhill verified their experiments. With this situation before him, Gibson considers the possibility of a substance other than that injected being responsible for the pyrexial symptoms following an injection of proteoses and their relation to anaphylaxis. Great care was taken in the preparation of the proteoses. They were made from four times reprecipitated caseinogen, recrystallized edestin and thoroughly washed pig fibrin. Rabbits and guinea-pigs were used as experimental animals. They were handled as little as possible, fed well and injected subcutaneously with aseptic precautions. Records of all animals, as to weight, sex, date of injection, temperature at time of injection and range of variation for from five to ten days were kept. Only two out of twelve experiments on guinea-pigs gave a definite pyrogenic reaction. The preparations mentioned above do not seem to be consistently pyrogenic for guinea-pigs; but in the experiments on rabbits no evidence of fever resulted from the proteose injections. Since there was practically no pyrexial effect, no relationship between anaphylactic shock and "peptone" intoxication was discovered. "It would seem then, that the primary cleavage products of pepsin-hydrochloric digestion, when prepared without drastic treatment, from purified and well-characterized proteins, never have more than a slight pyrogenic effect when injected subcutaneously into rabbits and guinea-pigs. Any temperature rise, if present, is insufficiently pronounced to permit a direct inciting rôle to be ascribed to such proteoses in the production of the severe naturally occurring fevers."

Drying Cultures of Lactic Bacilli

A press bulletin of the U. S. Department of Agriculture says that the general interest in fermented milks has stimulated the production of various kinds of tablets and capsules which are supposed to contain lactic-acid organisms in such quantities that the culture can be used to start fermentation in milk or to inoculate the digestive tract by direct consumption. These cultures, as well as those for butter- and cheese-making, are of value only when they contain the desired organism free from contamination and sufficiently active to start the fermentation before too great accidental contamination develops. The ideal form for such cultures is a dry state, sufficiently active to produce rapid growth when added to milk, and yet so dormant that the organism can be held a long time without losing its activity. This is difficult to attain and many dry cultures are practically inert. The most successful commercial cultures are sold in liquid form. The department has devised a method of preparing dry cultures which preserves to the greatest extent their activity. It consists in freezing the cultures and then drying them over sulphuric acid in a vacuum approximating 0.01 mm. The activity of the dried cultures diminishes more rapidly the higher the moisture content. The loss in activity is slow at 0 C. (32 F.) and is more rapid as the temperature rises. Cultures of lactic acid bacteria at 30 or 37 C. (86 or 98.6 F.) become inactive in a short time. The *Bacillus bulgaricus* made by the freezing-vacuum method is active and curdles milk in twenty hours at 37 C. in the ratio of 1:100,000. Yeasts do not survive the process, as the powders obtained were very feeble.

Value of Vital Statistics

As an argument against the value of vital statistics as ordinarily gathered, E. Goodman, in the *California State Journal of Medicine*, quotes again the statement frequently made that fully 50 per cent. of ante-mortem diagnoses are disproved by post-mortem findings. He says that even if violent and accidental deaths, deaths from occupational diseases, from specific infections and other obvious causes can be established beyond a doubt, yet the great number of doubtful causes vitiates all results. He asserts that necropsy is the only thing that stands between vital statistics as a guess and vital statistics as a science. While the desirability of establishing the exact causes of death in all cases by necropsy is obvious, yet it cannot be agreed that the value of the "bookkeeping of humanity" depends wholly on this. Most cases of infectious disease, including tuberculosis and typhoid fever, are correctly diagnosed, as is cancer in the fatal cases. In these diseases it is highly important that statistics be gathered in order that the large view of their causation and propagation may be obtained and preventive measures devised. Many of the obscure conditions subject to frequent errors in diagnosis do not occur in a large number of cases. Accurate figures in such conditions as gastric ulcer, gall-stones, nephritis and some of the heart conditions are a valuable aid in arriving at a correct conception of their general determining causes, but in the conditions named above, in the occupational diseases and in the accidental causes of death, mortality and morbidity statistics are most valuable, and these are now determined, when collected at all, with sufficient accuracy. To determine merely the birth- and death-rate is of great importance, and justifies any efforts to obtain universal and accurate registration. The verification of the causes of death by necropsy in every instance is out of the question, but to say that lack of this vitiates the value of all vital statistics is not a tenable statement.

Medicolegal

Authority of Superintendents to Employ Physicians to Render Services to Injured Employees—Summoning of Aid for Third Persons

(*Ohio vs. Schafer Bros. Mercantile Co. (Mo.), 163 S. W. R. 551*)

The St. Louis (Mo.) Court of Appeals says that the mere office of superintendent does not imply authority to contract for medical and surgical services rendered to third persons injured in its employ. But it is well settled that a superintendent may contract for medical and surgical services rendered to a third person, injured in the employ of the company, if it appears he possesses, and is accustomed to exercise, broad and comprehensive authority with respect to the conduct of the company's affairs in a general way.

Ordinarily, if one person requests another to perform beneficial services for him, and accepts and appropriates the benefits, the law implies a promise to pay the reasonable value. But this is because the services are of value to the person requesting the performance, and because, too, the law will presume that every person intends to pay for that which is wrought, at his instance and request, to his benefit. It is not the same, however, when one person merely calls a physician or a surgeon to attend a third person, for the dictates of humanity frequently induce one to do this, and, indeed, it may be the sick or afflicted person is at the time unable to speak for himself. Therefore it is the rule of decision that unless the relation of the person making the request is such as to raise the legal obligation on his part to call a physician and pay for his services, the law will not imply a contract to do so on a mere request.

Though such be true, however, it is not essential that there shall be an express promise to pay, even when one calls a physician to attend a third person with respect to whom no legal obligation obtains, if it sufficiently appears from the facts and circumstances in proof that the physician intended to charge for his services, and the person requesting him to perform the service intended to pay therefor. The distinction between an implied contract and an actual contract, though not an express one, which may be found by the jury from the facts and circumstances, as when it appears one party intended to charge and the other intended to pay, is recognized every day in the administration of the law. So, in this case, though no one in express words promised to pay the plaintiff for his services, rendered to an injured employee of the defendant, he might nevertheless recover on contract if the jury found as a fact that he rendered the services at the request of the defendant, with an intention on his part to charge, and that the defendant intended to pay therefor.

Physician's Willingness to Commit Crime Not Punishable—Nature of Rights—Inadmissible Evidence—Construction of Statute

(*State ex rel. Spriggs vs. Robinson et al (Mo.), 161 S. W. R. 1169*)

The Supreme Court of Missouri, Division No. 2, reverses a judgment of the circuit court sustaining the State Board of Health in suspending the relator or appellant from the practice of medicine and surgery in that state for a period of one year. The charge on which he was suspended was that he was guilty of "unprofessional and dishonorable conduct," in that he was willing to commit a criminal abortion. He had advertised in a local newspaper: "Practice limited to diseases of women and surgery. Office and private hospital," etc. The state statute under which he was suspended provides that the board may revoke licenses for, among other things, producing a criminal abortion, but the specifications in the act were not intended to exclude all other acts for which licenses may be revoked.

The court says that the appellant through his license to practice medicine, and through his ability and industry, had become possessed of at least a valuable privilege—perhaps a property right—which had been suspended by the action of the respondents for his alleged violations of the laws of the state; that it was not a mere shadowy privilege which might be revoked regardless of whether the possessor had violated the laws of the state, and the court found nothing in the brief of the attorney-general to intimate that the conviction and suspension of the appellant could be sustained on the advertisement which he published. Nor was hearsay evidence of another physician to the effect that the appellant bore the reputation of being a criminal abortionist sufficient.

The statute, in so far as it authorizes the revocation of licenses of physician, is highly penal and cannot be expanded or enlarged beyond its letter or spirit. Its general specification is directed solely against certain undesignated acts, not against evil thoughts or a willingness to perform wrongful acts. However reprehensible it may be for a physician to entertain a desire to commit abortion, his license cannot be revoked therefor unless by a written statute his desires are made the ground for subjecting him to that penalty.

Liability of Chartered Sewage Disposal Company for Maintaining a Nuisance

(*State vs. Collingswood Sewerage Co. (N. J.), 89 Atl. R. 525*)

The Supreme Court of New Jersey affirms a conviction of the defendant of maintaining a nuisance. The court says that the nuisance complained of was that, in the conduct of its sewage disposal plant, it permitted the generation of unpleasant and offensive odors, to the injury and discomfort of the community. It was a corporation, chartered under the Act of 1898 to collect, treat and dispose of sewage. To meet the state's case, the defendant took the position that, because it had secured the approval of its plans for the building and location of its plant, and had in every respect complied with all the requirements of the State Sewage Commission and the State Board of Health in the construction and operation of its plant, therefore it was immune to an indictment, even though there was faulty construction and operation of the plant which gave rise to offensive smells. But the court thinks the position taken by the defendant untenable. The legislature, in conferring on the defendant the privilege to treat sewage, did not grant with it a license to maintain a nuisance. Nor did the fact that the defendant constructed part of its plant under plans approved by the State Sewage Commission absolve it from liability for maintaining a nuisance. When the defendant discovered that the nuisance arose from faulty construction, its plain duty to the public was to amend such faulty construction, and not to go on continuing the nuisance. As there was some evidence from which the jury might properly have found that the nuisance complained of was the result of both a faulty construction and careless operation of the plant, the court properly refused to direct a verdict for the defendant. Nor was there error in a refusal to permit the defendant to prove the cost of the plant and that it was not a profitable concern; that it did not meet fixed charges, etc. The element of cost did not enter into the inquiry in any aspect of the case. No matter how much the plant might have cost, or how unprofitable it might be, neither element was sufficient to absolve a defendant from maintaining a nuisance arising from faulty construction or negligent operation of the plant. Moreover, the theory that, because the plans were drawn by engineers in the employ of the State Board of Health (which board, under an an act of 1908 amended in 1909, was vested with the powers and duties of the State Sewage Commission), recognized and approved by the board, therefore there could be no faulty construction, was palpably fallacious. When a plant is put into active operation and it is discovered that offensive odors are generated, which would not be the case if the plant were properly constructed, it is going to an unwarranted length to ask the court to assume that, because the plant was constructed under the approval of the State Board of Health, on plans of its engineers, therefore, as a matter of law and fact, there could be no faulty construction of the plant, and any nuisance generated thereby is a necessary incident of the business authorized by the legislature.

Society Proceedings

COMING MEETINGS

AMERICAN MEDICAL ASSOCIATION, ATLANTIC CITY, JUNE 22-26.

American Academy of Medicine, Atlantic City, June 19-21.
American Climatological Association, Atlantic City, June 19-20.
American Gastro-Enterological Association, Atlantic City, June 22-23.
American Laryn., Rhin., and Otol. Society, Atlantic City, June 19-20.
American Orthopedic Association, Philadelphia, June 18-20.
American Proctologic Society, Atlantic City, June 22-23.
American Urological Association, Philadelphia, June 18-20.
Conf. of State and Prov. Boards of N. America, Washington, June 19-20.
Maine Medical Association, Portland, June 10-11.
Massachusetts Medical Society, Boston, June 9-10.
Montana State Medical Association, Lewistown, July 8-9.
New Jersey Medical Society, Spring Lake, June 29.
North Carolina Medical Society, Raleigh, June 16.

ASSOCIATION OF AMERICAN PHYSICIANS

Twenty-Ninth Annual Meeting, held at Atlantic City, N. J., May 12 and 13, 1914

(*Continued from page 1748*)

Splenectomy for Pernicious Anemia

DRS. WARREN COLEMAN and JOHN A. HARTWELL, New York: Splenectomy was performed as a last resort. Ten weeks later neosalvarsan was administered. The use of neosalvarsan makes it impossible to draw any conclusion as to the effects of the splenectomy except in the interval before its administration. In this interval there was no evidence of more than temporary improvement. At the present time, April 24, six months after the operation, the patient, while looking better and feeling better, is just beginning to sit up.

Studies in Pernicious Anemia

DR. HERBERT C. MOFFITT, San Francisco: The results from splenectomy have been variable. In eight cases death resulted either immediately or soon after operation. A number of other cases have not been improved. In still other cases reported in the literature, surprising improvement has taken place. In my case paresthesia, which was obstinate before operation, disappeared at once afterward. There are other striking changes in the blood regeneration which follow soon after operation in many cases.

Studies in Experimental Arteriosclerosis

DR. I. ADLER, New York: Dogs were injected, partly intravenously, partly subcutaneously, with various substances, such as epinephrin, nicotin, lead, diphtheria toxin and pure cultures of different species of bacteria, all with absolutely negative results. In a further set of experiments, dogs were fed with a number of substances, under varying conditions, and it is believed that some positive results were obtained, so that the aorta in some cases showed lesions which both macroscopically and histologically were closely analogous, if not absolutely identical with human arteriosclerosis.

Case of Recurrent Fever in Aortic Aneurysm

DR. ALEXANDER MCPHEDRAN, Toronto: A woman, aged 36, of irregular life and habits, complained of pain in the right chest. She had recurrent fever about every seven or eight days. The aortic arch was dilated and showed a pulsating aneurysm in the first left intercostal space. The temperature became normal and remained so and her general condition improved very much. She was treated with iodids, mercury and salvarsan.

Certain Tests of Renal Function

DR. W. S. THAYER, Baltimore: When I have been able to correlate the anatomic and clinical observations, they have tended to fortify my previous opinion that the phenolsulphonephthalein test is a reliable one of considerable diagnostic and prognostic value, especially in the study of chronic nephritis.

DISCUSSION

DR. CHARLES F. WITHINGTON, Boston: A man, brought into the hospital unconscious, showed unmistakable evidences of acute nephritis. There was a history of convulsions and of coma. Twenty-four hours after the patient was brought in the phenolsulphonephthalein output was 70 per cent. His condition proceeded to clear up and he went out about two weeks after he was brought in, showing a surprising phenolsulphonephthalein output, although manifesting signs of nephritis.

DR. JOSEPH L. MILLER, Chicago: A man came to the hospital, not very ill, in whose case a definite diagnosis of chronic interstitial nephritis was made. He was passing 2,000 c.c. of urine a day. We could not get a trace of phenolsulphonephthalein through in two hours. In forty-eight hours and up to the time he went into coma, he passed a large amount of urine, and at the end of forty-eight hours he went into coma and died. Necropsy showed a high degree of interstitial nephritis.

Syphilitic Nephritis

DR. ALFRED STENGEL and DR. J. HAROLD AUSTIN, Philadelphia: We have examined the urine with the polarizing microscope 58 times from 46 cases. Of these 46 cases, 23 showed nephritis with an abundance of albumin and casts in the urine. Of these 23 patients, 6 had positive Wassermanns, 3 had strong presumptive evidence of syphilis, but no positive Wassermanns; 14 had not the slightest evidence of syphilis. The 6 cases with positive Wassermanns all showed lipoids in the urine. The rest of the 46 cases studied were made up in part of nephritis cases of the interstitial or arteriosclerotic types, with only traces of albumin in the urine, and a few hyaline and granular casts, some with syphilis and some without, any number of syphilitic cases with no nephritis, and any number of control cases with neither syphilis nor nephritis. None of these cases showed lipoids in the urine. One of the six syphilitic cases with nephritis showing lipoids in the urine had not received any mercury.

In order to determine whether or not the common experimental degenerative nephritides of animals would be associated with lipoids in the urine, three rabbits were given uranium nephritis and one dog a chromate nephritis. The four experiments were negative; no lipoids were found in the urine. Further experiments with mercurial nephritis, phosphorus and chloroform lesions and syphilitic inoculations are in progress.

The Pathologic Evidence of the Relationship Between Gastric Ulcer and Gastric Carcinoma

DR. LOUIS B. WILSON, Rochester, Minn.: Any existing disagreement as to the relationship between gastric ulcer and gastric carcinoma depends on (1) failure to understand the pathologic data, (2) inappreciation of the bearing on the clinical data, or (3) failure to appreciate the correlation existing between the two. Small gastric ulcers are usually simple, and large cauliflower-like cancers usually show little evidence of previous ulceration, but between these two lies a large group of ulcerated lesions of the stomach, some of which are ulcers only and others of which resemble ulcers in all respects, except that in addition they also show cancer. So far as the pathologist is concerned, he cannot positively distinguish, in many such specimens, between simple ulcer and ulcer plus cancer, except with a microscope. When, in such a specimen showing cancerous areas, no cancer-cells are found in the base of the ulcer, one is warranted in assuming that the ulcerative lesion preceded the cancer.

The Etiology of Some of the Infective Tropical Granulomas

DR. RICHARD P. STRONG, Boston: Among the infective granulomas which occur more commonly in certain tropical countries and which are perhaps of unusual interest from an etiologic point of view, are verruga peruviana, ulcerating granuloma of the pudenda, and frambesia. Verruga peruviana and Oroya fever have been considered to be merely different stages of the same disease, Oroya fever having been regarded as the initial stage of the granulomatous verruga stage. The two diseases, however, are quite distinct and have a very different etiology. Verruga peruviana is due

to a virus which may be transmitted to some of the lower animals, while Oroya fever owes its origin to a parasite of the red blood-corpuscles. The two diseases also have a very different pathology. The etiology of ulcerating granuloma does not seem to be definitely determined.

(*To be continued*)

AMERICAN DERMATOLOGICAL ASSOCIATION

Thirty-Eighth Annual Meeting, held in Chicago, May 14-16, 1914

(*Continued from page 1749*)

Epithelioma of the Hand Following Traumatism, Resembling a Granuloma

DR. HOWARD FOX, New York: The patient was a man of 48, whose previous history showed only an attack of measles when a child, and an attack of "blood-poisoning" in the left wrist, for which incision was made, and which healed at the end of sixteen weeks. Syphilis was denied. During the summer of 1911 he was bitten on the back of the right hand by a horse, which injury caused an open wound at the junction of the fifth metacarpel bone with the carpus, which healed in the course of two weeks. Five or six weeks later an open sore again appeared on the back of the right hand, which gradually extended in area and became red and swollen, with discharge and crust formation. When first seen, the right hand showed the characteristics of ordinary senile skin. The entire dorsal surface was swollen, edematous and tender, the swelling extending to the wrist and first phalanges. On this area were serpiginous, rather sharply bordered ulcerating and crusted lesions, extending from the knuckles to the proximal ends of the metacarpal bones. The central portion was covered with epidermis. By pressing on almost any portion of the back of the hand a considerable amount of thick, yellowish pus could be expressed. The clinical picture was that of a granuloma due to tuberculosis, blastomycosis, actinomycosis or possibly syphilis, complicated by an extensive suppurating cellulitis. Wassermann reaction was negative. A biopsy was then made, which showed the presence of a most typical squamous-celled epithelioma. Patient refused operation, and six Roentgen-ray exposures were given. He was also treated by wet dressings of potassium permanganate. Examination of the chest showed some coarse râles, slight dulness and diminished breathing. A roentgenogram of the chest indicated involvement from the level of the fifth dorsal down to the lower border of the ninth rib, the irregularity of the shadow indicating carcinoma. The patient lost weight and became cachectic. Dysphagia steadily increased, and after gastro-enterostomy for its relief the patient died.

Epithelioma of the hand is a comparatively rare condition, and in the vast majority of the cases occurs on the dorsal surface. In spite of being histologically, as a rule, a malignant type of cancer, it runs a slow and relatively benign course, seldom invading the lymphatic glands. The majority of cases develop on a basis of chronic inflammatory tissue; few arise after a single traumatism.

DISCUSSION

DR. ALFRED SCHALEK, Omaha: I had a case much like the one reported, but in my case the growth occupied the whole dorsum of the hand. I suspected malignant disease at first. I did not think of epithelioma because I had never seen a case of epithelioma in the hand. There was extreme pain. The growth was excised, and later a skin graft used, which was followed by recurrence. The patient was referred to a surgeon, who amputated the arm. After that I heard nothing more from him. In my case the process certainly was not benign. It looked to me to be very malignant.

DR. W. A. PUSEY, Chicago: I have seen a considerable number of epitheliomas on the back of the hand. My experience in general corresponds with Dr. Fox's, that such epitheliomas are relatively not very dangerous; but this has set me to thinking of one thing during the last few years, namely, why epitheliomas on the back of the hand occurring in Roentgen-ray skins are so excessively dangerous. I think it is a general fact that they are very liable to metastasis, and I would like to know why these lesions are dangerous, while ordinary ones are not. I have seen only one epithelioma on the palm, and that was an exceedingly interesting case.

DR. M. B. HARTZELL, Philadelphia: I have seen three or four patients in whom epithelioma has followed immediately on a slight injury. One occurred on the end of the nose of a woman between 50 and 60 years of age; a scratch, which never healed, was followed within a few weeks by a typical epithelioma. In another case the epithelioma occurred on the inner surface of the lip, following a traumatism inflicted by a dentist. I can also recall two cases of carbuncles on the back of the neck which were followed immediately by epitheliomas; that is, the wound left by the carbuncle never healed, and epithelioma developed on that site. Perhaps my experience has been unusual.

DR. MARTIN F. ENGMAN, St. Louis: The case of Dr. Fox seems to illustrate the theory of Ribbert uniquely, in which the normal epithelium through an ulcerating surface is misplaced and separated from its kindred, and thus undergoes atypical physiologic functionating, and rather quickly develops into an epithelioma. We see quite a number of cases of epithelioma of the back of the hand, but they usually originate from keratoses. I have seen several cases following Roentgen rays, and one case, I think, was fatal. This seems to be due to the poor regenerative qualities of the connective tissue, possibly, and the poor condition of the vessels. In a large proportion of these cases the epithelioma is preceded by secondary degeneration of the connective tissue, as found by White.

DR. G. W. WENDE, Buffalo: I have had a case of epithelioma on the palmar surface of the hand, following an injury. It developed soon after the traumatism, and grew rapidly. The course, from beginning to end, was less than a year and a half in length.

DR. UDO J. WILE, Ann Arbor, Mich.: I think that attention might be drawn to the one notable exception, at least, to the relatively benign nature of epithelioma of the extremities. A number of cases following the ingestion of arsenic preparations have been reported. A few years ago, in looking up the literature, I was struck by the large number of arsenical growths, all of which were fatal.

DR. SIGMUND POLLITZER, New York: I think that the class of cases which forms the subject of Dr. Fox's paper may well be brought under that group of epitheliomas which are the result of misplacement of the epithelial cells, caused by the trauma. In this respect this class of cases does not differ materially from another class of epitheliomas that occur commonly as the result of a nevus, with cellular proliferation. I have seen several cases of nevi which depend on cellular inclusions, as moles and pigmented moles that have been treated by cauterization by one method or another, and I think that it is a bad practice. A cellular inclusion nevus should be treated like an epithelioma, or let alone. I should like to emphasize that point. Ninety-nine times out of a hundred nothing happens, but in the last case, if a few cells are left behind, they are subjected to terrific irritation from the treatment, and are apt to degenerate into a malignant process.

DR. HENRY H. HAZEN, Washington, D. C.: I have had the opportunity of going over one thousand cases of epithelioma of the skin with Dr. Bloodgood, at Johns Hopkins Hospital. In that series forty or fifty originated in the limbs. In from two to ten years absolutely every case of prickle-cell epithelioma in which the glands were not taken out developed metastases, one or two as late as ten years. These cases were all proved malignant by microscopic examination. When we have a prickle-cell epithelioma, we always should excise the draining glands, in addition to taking out the epithelioma itself. We ought also to be careful about our method of doing biopsies on prickle-cell tissues. We leave both the lymphatics and blood-vessels open, and there is a

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good chance for any cancer-cells to escape into those vessels. We should use a dull knife, and if we cannot do that the wound should be immediately cauterized.

DR. W. T. CORLETT, Cleveland: My experience may have been unique, but next to the epithelioma of the face, I have encountered epithelioma of the back of the hand most frequently, and in the latter cases I have been impressed with the frequency with which metastases have occurred. I have attributed that to the fact that epithelioma on the face is usually a conspicuous lesion and relief is sought at an early time, whereas an epithelioma occurring on the hand is usually less conspicuous, and therefore is liable to be neglected.

DR. W. A. PUSEY, Chicago: I should like to question the accuracy of any statistics to the effect that every case of epithelioma of the back of the hand had metastases. I think from my experience it is certainly extraordinary and not usual. I should also challenge the statement that every epithelioma of the back of the hand should be followed by extirpation of the lymphatics. I do not think it is common sense or good or necessary surgery.

DR. HENRY H. HAZEN, Washington, D. C.: I said prickle-cell epitheliomas, and about 80 per cent. are prickle-cell.

DR. HOWARD FOX, New York: Dr. Engman referred to the short time between the traumatism and the development of the epithelioma. I do not think that six months is a very short time, but I just mentioned the traumatism as a suggestion; I think it would be impossible to prove that that traumatism with the resulting scar was the actual cause of the epithelioma. In one of the cases reported in the discussion the epithelioma appeared ten years afterward in the scar resulting from the bite of an animal. From the literature I have found that epithelioma occurs on the sole of the foot a good deal more often than on the palm of the hand, and I think that some of these cases have started in perforating ulcers. Certainly, the majority of cases of epithelioma of the extremities arise on a basis of some chronic inflammatory process, a lupus or a fistula, in connection with an osteomyelitis or a chronic dermatitis or a chronic ulcer of some sort, and a relatively small number arise on apparently normal skin. In regard to the malignancy of the cases occurring after Roentgen-ray work, according to the statistics of Brunn and Volkmann the most malignant type of epithelioma is that which develops on wheals and moles, congenital or those which appear later in life.

(To be continued)

MEDICAL SOCIETY OF THE STATE OF NEW YORK

One Hundred and Eighth Annual Meeting, held in New York City, April 28-30, 1914

(Concluded from page 1751)

Cystitis Colli or Trigonitis

DR. HENRY D. FURNISS, New York: Before the use of the cystoscope, these patients were all considered neurotics. Authorities have attempted to separate these cases of cystitis colli, referring to them as the non-inflammatory and to the other as the inflammatory type. In the non-inflammatory type the trouble at the neck of the bladder may be due to pressure from a retroverted uterus, a pelvic growth, cystocele or any other cause of pelvic congestion. I am of the opinion that these are coincident infections, and very seldom is there any other form of cystitis colli than that due to infection. The two principal infections are gonorrhea and colon bacillus. The best results are obtained by local treatment to the trigon with from 3 to 8 per cent. silver nitrate. The silver nitrate is neutralized by the urine.

DISCUSSION

DR. JOHN O. POLAK, Brooklyn: I have found these infections more frequent than previous writers have been inclined to consider them. For several years I have discarded vulvar pads on these patients and have found a direct relation between the number of infections, sufficient to convince me that the vulvar pads should be discontinued. The intestinal tract is very apt to soil the vulvar pads and the wound is infected frequently from the vulva and thus infection of the genital tract results. I have found post partum a large number of cases of cholecystitis, the majority of them having subsided under the expectant plan of treatment to fall later into the surgeon's hands for operation for chronic gall-bladder inflammation. I have seen many cases of appendicitis during pregnancy associated with colon bacillus infection of the kidney; I have seen a number of cases of appendicitis in the puerperium. I have yet to see a case, however, of colon bacillus infection of the kidney that has necessitated the interruption of pregnancy.

DR. REGINALD M. RAWLS, New York: I have gone over the reports of about four hundred cases in the literature and I find that in the great majority of colon bacillus infection cases recovery occurs spontaneously under conservative treatment. I would not be so radical as Dr. Davis in recommending operation in so many of these cases.

DR. PAUL PILCHER, Brooklyn: One of the most dangerous things we can do is to resort to surgery on a kidney whose pelvis is infected, and if we are going to cut a kidney in the presence of infection we should end in the majority of cases by taking the kidney out. Our results in the cases of pyelitis in pregnancy have been very good and in none have we operated on the kidney. We have drained many of them. As to infection of the intestinal tract from colon bacillus, Dr. Davis said appendectomy had been done in a number of these cases. I have found the greatest advantage of a permanent nature to come from appendicostomy rather than from appendectomy. As to infections at the neck of the bladder, I am not quite willing to call them cystitis colli. We seldom see the bladder infected in these cases. It is more a disease of the urethra than of the bladder. The treatment is applied to the neck of the bladder and the urethra rather than to the bladder itself.

DR. ROSALIE S. MORTON, New York: I believe that this condition is one which is frequently overlooked. I have had under my care a young woman who has suffered for four years with this infection as a result of tears at the time of an instrumental delivery four years ago. If the attention of the profession were called to the frequency of this infection, I am sure that many of these patients would be saved from years of invalidism.

Methods of Treatment of Puerperal Infections Which Have Given Improved Results

DR. RALEIGH R. HUGGINS, Pittsburgh, Pa.: One hundred and twenty-five cases of infection following abortion after the second month of delivery have been treated in a conservative manner as far as the inside of the uterus is concerned, except when firm contraction of the uterus was not present, or when it could not be secured by the use of strychnin or ergot, or when the uterine cavity was firmly packed with iodoform gauze. This was done for the purpose of securing firm contraction if the uterus had not been emptied to facilitate the expulsion of its contents. The satisfactory use of magnesium sulphate locally in erysipelas led me to try it in the treatment of puerperal infection. At first it was given in a 1 per cent. solution of saline, about 30 grains at a time. Later it was learned that much greater quantities could be given safely if given slowly. Dr. Harrar of New York has used 250 grains without any alarming effects. Distilled water has been used instead of saline, and there have been fewer chills following its administration. There have been no accidents from its use, and I have given it more than 150 times. It is not bactericidal, but the tissues are stimulated to greater resistance.

The most rational treatment in the beginning of every case of sepsis starting within the uterus is based on a keen appreciation of the pathology. The most important indication is to secure firm contraction of the uterus. The second factor is a healthy respect for Nature's protected zone, in this way limiting the spread of the infection. Good drainage is also an important factor and is secured by placing the patient in a sitting position. Active general measures, such as

attention to diet, elimination and fresh air are the important factors in the treatment of puerperal infection.

DISCUSSION

DR. JAMES A. HARRAR, New York: I have used the intravenous infusions of 2 per cent. solution of magnesium sulphate in freshly distilled water in a number of cases of streptococcic toxemia, and in twelve cases of streptococcic bacteriemia proved such by repeated positive blood-cultures. Dr. Huggins has been extremely fortunate in securing such a large number of bacteriemias on which to test out the blood, and his results have certainly been extraordinary. In a large service, such as that at the Lying-In Hospital, of over 5,000 puerperal women a year including infected postpartum cases sent in by doctors and midwives, we have had in three years but 12 cases of bacteriemia in which to use the injections. That bacteriemia is more often suspected clinically than is proved by blood-cultures was demonstrated by our former pathologist, Dr. J. E. Welch. In 176 cases referred for blood-cultures prior to 1908, he secured positive cultures in but 46. Of these 46, 43 died under ordinary methods of treatment. Dr. Meltzer warns against the depression of the respiratory centers by magnesium sulphate, but in considerably over a hundred intravenous injections of from 200 to 400 c.c. of a 2 per cent. solution of the salt I have seen no toxic effects of any kind.

DR. SAMUEL J. DRUSKIN, New York: In the cases under discussion the blood-vessels extending to the mucous lining are filled with clots, but the middle and outer layers are not. We also find the same reaction in the normal uterus. These clots are soft and have a tendency to break down. It has been demonstrated that the chorionic villi penetrate the mucous membrane, split the inner-muscle fibers and bundles, and there is penetration of the blood-vessels near the inner surface of the uterus. The blood-vessels react by hyaline degeneration, and there is a tendency toward splitting of the coat of the blood-vessel. The effect of this is that when the uterus contracts after parturition, the inner muscular layer does not close up and press the blood out of the blood-vessels. The blood-vessels themselves, and even arteries do not react as they normally do, and they have a tendency to become thrombosed. It would appear that the condition is not primarily an infection due to micro-organisms, but that we have first closure of the blood-vessels due to thrombi which later on become infected.

(*To be continued*)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Boston

May, XXXIV, No. 11, pp. 127-261

1 *Anterior Lobe of Pituitary Body in Its Relationship to Early Growth Period of Birds. R. Wulzen.
2 *Rôle of Nascent Oxygen in Regulating Activities of Enzymes in Animals and Plants. W. E. and E. L. Burge, Chicago.
3 *Physiology of Stomach. Influence of Smoking and of Pressure on Abdomen and on Gastric Hunger Contractions. A. J. Carlson and J. H. Lewis, Chicago.
4 *Id. Nervous Control of Gastric Hunger Mechanism. A. J. Carlson, Chicago.
5 *Adrenal Deficiency and Sympathetic Nervous System. R. G. Hoskins and H. Wheelon, Chicago.
6 Relation of Pulsation to Filtration. G. A. Gesell.
7 *Concerning Periodic Cardiovascular and Temperature Variations in Women. J. L. King, Baltimore.
8 *Influence of Curare on Vasomotor Reflex Thresholds. E. G. Martin and P. G. Stiles, Boston.
9 Factors Affecting Coagulation Time of Blood. W. B. Cannon and W. L. Mendenhall, Boston.
10 *Id. II. Epinephrin Injections. W. B. Cannon and H. Gray, Boston.
11 *Id. III. Stimulating Splanchnic Nerves. W. B. Cannon and W. L. Mendenhall, Bosotn.
12 *Id. IV. Pain and Emotional Excitement. W. B. Cannon and W. L. Mendenhall, Boston.

1. **Relation of Pituitary Body to Growth.**—Wulzen found that the growth of young fowl is retarded by the addition to the diet of fresh, unmodified anterior lobe of ox pituitary. This is shown both in body-weight and in length of the long bones. Involution of the thymus accompanies this retardation and may bear a causal relation to it. These effects are more marked in the males than in the females.

2. **Protective Rôle of Nascent Oxygen.**—The fact that pepsin and trypsin are oxidized by nascent oxygen and that the mucosa of the stomach and intestine possesses intense oxidative properties the Burges claim may be used to explain the protection of these organs from self-digestion during life; and the fact that diastase is destroyed by nascent oxygen offers an explanation of the observation that the amount of this enzyme is decreased during the day and increased during the night in plants. The fact that the autolytic enzymes are destroyed by nascent oxygen and that the tissues possess oxidative properties would seem to justify the assumption that normally there is a balance between the oxidative and autolytic processes in the living tissues. The fact that in certain pathologic conditions where autolysis is increased the oxidative processes are decreased is in accord with this assumption.

3. **Factors Influencing Gastric Hunger Contractions.**—The effects of smoking on the gastric hunger contractions were first studied by Carlson and Lewis in the case of a young man with a permanent gastric fistula. In his case smoking (cigars) invariably led to inhibition of the hunger contractions. But the man was not an habitual smoker, and the authors suggest that it is therefore possible that the results obtained on him were simply due to the condition of nausea or disgust that smoking usually produces in the novice and hence not applicable to persons used to smoking. The tests have been repeated on several habitual smokers.

In so far as smoking influences the gastric hunger contractions, this influence is in the direction of inhibition. This inhibition appears to depend on the intensity of stimulation of the nerve endings in the mouth, a cigarette or "mild" cigar causing only slight inhibition, while a "strong" cigar or pipe causes complete and prolonged inhibition even when the gastric hunger contractions are at their maximum. If the cigar or pipe causes very strong stimulation of the nerve endings in the mouth, the inhibition of the hunger contractions may continue from five to fifteen minutes after the cessation of the stimulation. Thus even a brief period of smoking may suppress an entire hunger period.

The subjective sensation of hunger is diminished or abolished parallel with the gastric hunger contractions. But it seems to the authors that even a "mild" smoke diminished the sensation of hunger rather more than one might infer from the slight depression of the contractions. This they believe, is probably due to the deviation of attention, the smoking acting partly as a "counter irritant." Smoking inhibits the gastric hunger contractions. It is practically certain even in the absence of direct experiments that moderate smoking does not inhibit the gastric movements of digestion. The reason for the difference in the action of the same condition on the empty and on the filled stomach is not clear from present data.

Experiments with constriction of the belt were made on three normal men. The tests were made with the subject standing up, sitting and lying on the back, and at all stages of the gastric hunger contractions. Strong contraction of the abdominal belt leads nearly always to inhibition of the gastric hunger contractions of weak or moderate strength, lasting from five to fifteen minutes. When the gastric hunger contractions are strong (the middle of a hunger period), constriction of the belt never causes complete inhibition. When the gastric hunger contractions are at their maximum in rate and amplitude, as is ordinarily the case near the end of a hunger period, no amount of belt constriction seems to influence the contractions. All three subjects agreed that the belt constriction appeared to diminish or interfere with the hunger sensation to a greater extent than seemed warranted from its effect on the hunger contractions. The authors state that belt constriction causes gastric inhibition, not by direct pressure on the stomach, but by direct stimu-

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lation of inhibitory nerves, or by mechanic (or sympathetic) stimulation of the adrenal glands, but through long reflexes.

4. Nervous Control of Gastric Hunger Mechanism.—According to Carlson moderate muscular activity (walking) has no direct influence on the gastric hunger mechanism. Intense muscular activity (running) inhibits the hunger mechanism in direct proportion to the intensity and duration of the exercise. Feeble hunger contractions may continue during moderate running. There appears to be some increase in the gastric tonus and hunger contractions as an after effect of moderate exercise. Stimulation of the cold nerve-endings of the skin does not affect the vagogastric tonus apparatus. If the stimulation is of sufficient intensity it induces (especially in man) a temporary inhibition of the gastric-hunger contractions via the splanchnic nerves. A similar inhibition is induced by strong stimulation of the cutaneous nerve-endings for warmth. There is a distinct increase in the gastric tonus and hunger contractions as an after effect of prolonged and intense stimulation of the cold nerve-endings of the skin.

The vagogastric tonus mechanism is not influenced by the condition of sleep, except in the way of augmentation, owing to the elimination of all inhibitory processes via the splanchnic nerves. The vagogastric tonus mechanism is not affected by intellectual processes or emotional states, except in so far as these cause inhibition of the gastric tonus and hunger contractions via the splanchnic nerves. It is clear, then, Carlson says, that in normal individuals (man, dog) the vagogastric tonus apparatus, at least so far as it concerns the empty stomach, is physiologically isolated from the exteroceptors and from many, if not all, central processes, while the splanchnic inhibitory apparatus is readily accessible to these processes. The biologic significance of this exceptional and unique isolation of the tonus apparatus of the hunger mechanism probably lies in the importance of the hunger mechanism being regulated on its positive side primarily by the state of nutrition; that is, through the blood, rather than by the fleeting changes in the nervous system.

5. Adrenal Deficiency and Sympathetic Nervous System.—Complete ligation of both adrenal glands of dogs at a single operation, Hoskins and Wheelon found, causes within four to six hours characteristic weakness of the skeletal muscles—including those of respiration. The weakness is shared to a marked degree by the cardiac muscle. At a time when cardiac weakness is strongly in evidence blood-pressure remains at or near its initial height. A compensatory activity of the vasomotor system therefore occurs. Vasomotor responses to faradic stimulation of the crural nerve persist. The vasomotor reactions to epinephrin also persist undiminished. The reactions to nicotin are often somewhat exaggerated as compared with preliminary observations with the same dosages. The vasomotor system, therefore, as well as the vascular musculature are unimpaired at a time when marked asthenia of skeletal and cardiac muscle has developed. This asthenia is sufficient alone to account for the final fatal results of adrenal extirpation. The authors found no evidence, therefore, that the sympathetic system suffers primarily in any degree from adrenal extirpation.

7. Cardiovascular and Temperature Variations in Women.—In the study reported by King, observations made on the pulse and temperature of women support the usually accepted theory of a rhythmic movement in the life processes; the highest point is reached three to four days before the menses, the lowest point about three days after their cessation. With one exception, blood-pressure records of the systolic, diastolic and pulse-pressures made on eleven women gave such irregular results that they cannot be regarded as supporting the wave theory. King's results, as far as they go, seem to indicate that there has been a tendency to overemphasize the inefficiency of women during the menstrual period.

8. Influence of Curare on Vasomotor Reflex Threshold.—The author's results may be summarized in the statements: 1. The thresholds for vasomotor reflexes are not, as a rule, markedly affected by curare. 2. The vasoconstrictor center shows signs of impairment of unity under the influence of the drug, causing it under certain circumstances to exhibit gradations of response not unusual in uncurarized animals.

10. Epinephrin and Coagulation Time of Blood.—Cannon and Gray found that epinephrin injected intravenously in small doses (0.001 mg. per kilo) and in larger doses subcutaneously, will shorten coagulation time to one-half or one-third the former duration. The prompt shortening of the process after small doses is changed after larger doses (about 0.03 mg. per kilo) to a lengthening and later a shortening, or to a lengthening alone. The effect of epinephrin on the clotting time is not associated with any corresponding effect on arterial pressure. If the blood is confined anterior to the diaphragm, or if the intestines and liver are removed, epinephrin in small doses does not cause rapid clotting. The addition of a small amount of epinephrin to drawn blood does not hasten clotting. Increase of dextrose in the blood to 0.3 or 0.4 per cent. does not cause the rapid clotting seen after epinephrin injection. The explanation is suggested that epinephrin accelerates the clotting process by stimulating the liver (and intestines?) to greater activity in discharging some factor or factors in coagulation.

11. Hastening Coagulation by Stimulating Splanchnic Nerves.—Stimulation of the splanchnic nerves, Cannon and Mendenhall found, results immediately, or after a brief delay, in shortening of the coagulation time of blood. The degree and the duration of the effect varies—clotting not uncommonly takes less than half the time it took before stimulation, and this period of rapid clotting may last from ten to thirty minutes. The stimulation usually produces less marked effects as it is repeated. If the adrenal is removed on one side, splanchnic stimulation on that side does not shorten the clotting time; whereas splanchnic stimulation on the other side is still effective. The faster clotting is therefore due to increased adrenal discharge. Since stimulation of nerves supplying the liver and intestines does not hasten clotting, and since increase of epinephrin has no effect in the absence of the liver and intestines, the shortened clotting after splanchnic stimulation is accounted for by the action of adrenal discharge on the liver (and intestines?). The variations in the effects in different animals can be accounted for by variations in the epinephrin content of the adrenal glands in confined animals.

12. Hastening Coagulation by Pain and Emotional Excitement.—Stimulation of afferent nerves (sciatic, crural), or major operations under light anesthesia, markedly shorten the coagulation time of blood. Emotional excitement is the occasion for very rapid clotting (sometimes in less than a half minute), which becomes slow (three to five minutes) when the splanchnic nerves are cut. Pain and strong emotions have been proved to evoke secretion of the adrenal glands; and epinephrin hastens clotting. Rapid coagulation may reasonably be considered, therefore, as another instance of adaptive reaction serviceable to the organism in the injury which may accompany pain or which may follow the struggle that fear or rage may occasion.

Annals of Ophthalmology, St. Louis

April, XXIII, No. 2, pp. 217-444

13 Psychic Disturbances Involving Eye. F. P. Lewis, Buffalo.
14 Study of Eye-Grounds in Psychoses. W. L. Benedict, Ann Arbor, Mich.
15 Sudden Bilateral Blindness Following Fit of Anger, with Resultant Permanent Bilateral Central (Paracentral) Scotomata. J. H. Claiborne, New York.
16 Eye-Strain and Ocular Discomfort from Faulty Illumination. W. B. Lancaster, Boston.
17 Ocular Symptoms Associated with Oxycephalus or Tour Skull. J. M. Patton, Omaha.

Archives of Internal Medicine, Chicago

May 15, XIII, No. 5, pp. 673-840

18 *Influence of Adrenals on Diabetic Metabolism. G. Lusk and J. A. Riche, New York.
19 *Experimental Studies on Blood-Serum of Cows Immunized against Tuberculosis. E. R. Baldwin, Saranac Lake, N. Y.
20 *Experimental Study of Intestinal Obstruction. J. A. Hartwell, J. P. Hoguet and F. Beekman, New York.

21 Classification of Amebas. C. F. Craig, Fort Leavenworth, Kan.
22 Physiologic Degeneration of Mesonephros. With Consideration of Antagonistic Action of Organs and Functional Mutation with Morphologic Persistence. H. Oertel, London.
23 *Method Developed for Obtaining Standard Wassermann Antigen. C. W. Field, New York.
24 *Study of Action of Atropin on Eosinophil Cells of Blood. W. W. Herrick, New York.
25 *Clinical Observations of Defective Conduction in Branches of Auriculoventricular Bundle. E. P. Carter, Cleveland.

18. **Influence of Adrenals on Diabetic Metabolism.**—The subcutaneous injection of epinephrin in a well-nourished dog twenty hours after the ingestion of a standard mixed diet sufficient for maintenance caused an increase of the respiratory quotient from 0.77 to 0.89. From the former quotient Lusk and Riche calculated that 16 per cent. of the heat production was at the expense of glucose, while from the latter it appears that 62 per cent. had that source. Before the injection of epinephrin, 0.8 gm. glucose was oxidized per hour, and after the injection 7.4 gm. per hour. The dog became muscularly active about half an hour after the administration of the drug.

The subcutaneous injection of epinephrin in a dog which had received 50 gm. of glucose resulted, in one experiment, in a respiratory quotient for a six-hour period of 0.98, and a combustion of glucose amounting to 7.7 gm. per hour, corresponding to 82 per cent. of the heat production of the period. On repetition of the experiment six days later, the respiratory quotient was found to be 0.99 during a period of five hours, and the oxidation of glucose amounted to 7.6 gm. hourly, being the equivalent of 85 per cent. of the total calories produced. The heat produced from the oxidation of 7.5 gm. of glucose is 28 calories, and the basal metabolisms of the dogs did not exceed 20 calories per hour. This is suggestive that epinephrin does not cause a diminution in the power of the organism to oxidize glucose.

The theory that epinephrin causes a production of sugar from fat, decreases the power of the organism to oxidize glucose through inhibition of pancreatic function, and stimulates the thyroid so that protein metabolism is increased, Lusk and Riche hold is untenable in any of its particulars.

19. **Blood-Serum of Cows Immunized against Tuberculosis.**—Baldwin's experiments relate to the properties of the serum of a cow repeatedly immunized against tuberculosis during a period of ten years. Six intravenous inoculations of living human cultures of tubercle bacilli, both of virulent and weak-virulent infectivity, besides numerous injections of all forms of tuberculin, were given to this cow. Specific agglutinin, precipitin, opsonin and complement-deviating antibody were demonstrated in varying degree in the serum, but never reached a high content. The presence of a bacteriolysin was not demonstrated; neither was a bacillicidal effect recognized either in the serum or leukocytes. Living human tubercle bacilli "sensitized" with the immune serum showed increased infective power in guinea-pigs and rabbits as compared with normal cow-serum. The increased infective power was manifested by earlier and more marked reactions or inflammation following inoculation, and a wider spread of the disease than in controls. This acceleration of infection was not manifest unless the cow had recently received injections of pulverized bacillus residue, but the immune-serum-agglutinin titer was not always greater than the normal cow-serum. To explain the apparent paradoxical action of the immune serum, it is suggested that the strongly agglutinated bacilli were protected from injury by the leukocytes of the inoculated animal by reason of the clumping. The bacilli were presumably phagocyted in large masses, but more difficult of digestion for that reason. It may also be suggested that the bacilli laden with antibody (opsonin) were more rapidly phagocyted and scattered, but owing to the resistant wax were not digested in sufficient numbers. A "sensitized" *living* tubercle-bacillus vaccine is not safe or practicable when prepared from immune bovine serums, considering the above-mentioned results.

20. **Study of Intestinal Obstruction.**—The results of their investigations of intestinal obstruction are summarized by the authors as follows: There are two factors at work in producing the symptoms and causing death in this condition. First, the loss of water from the tissues, due to the excessive drain into the bowel in response to the irritation set up by the retained secretions. This water may be replaced by subcutaneous injection of normal saline solution, and the symptoms caused are thus entirely controlled with a saving of life. Second, the entrance into the circulation of poisonous materials, which occurs only when the mucosa of the bowel is damaged. This damage results largely from the trauma inflicted by the overdistention acting on the circulation, but possibly also by the chemical action of the digestive ferments stagnated above the obstruction. Such a damage having resulted, there occurs a bacterial invasion into the bowel wall with a death of tissue cells (which is invariably demonstrable by microscopic examination), and in this process the poisonous substances are elaborated. The action of these poisons is apparently not influenced by the administration of saline subcutaneously. The absorption of a poison from any source whatsoever, so long as the mucosa remains intact, is not a factor. The development of a bacteriemia as a cause of death is excluded.

23. **Method for Obtaining Standard Wassermann Antigen**—Field uses the extract from guinea-pig hearts because a larger number can be used for each batch of antigen, so that the individual factor is reduced to the vanishing point.

24. **Action of Atropin on Eosinophil Cells of Blood.**—Herrick found that atropin in ordinary, non-toxic doses has no striking influence on the eosinophil cells of the guinea-pig's blood. Given in toxic doses resulting in loss in weight and other signs of disturbed nutrition, and particularly when such doses are repeated as often as every twelve hours, there is a diminution in the number of these cells, and the eosinophilia following interval injections of serum is diminished or absent. It is probable that this effect of atropin is not specific, but is the depression of a highly specialized function by the general effect on nutrition of large amounts of a strong poison.

25. **Defective Conduction in Branches of Auriculoventricular Bundle.**—Carter analyzed the reports of twenty-two cases. He found that in the presence of lesions involving the conductivity of the branches of the auriculoventricular bundle, a distinct and characteristic type of electrocardiogram is obtained. To the ventricular contractions on which these depend the term *aberrant* may be applied. This type of electrocardiogram is frequently associated with aortic valve disease; it is distinct from that of hypertrophy predominant in one ventricle.

Bundle-branch defects are usually accompanied by defects in the main trunk, suggesting that the junctional tissues as a whole have a special pathology. Carter claims that the evidence is too slight to admit of any definite conclusions as to the relation between lesions of the bundle branches and the occurrence of extrasystoles, and that the electrocardiographic pictures of aberrant beats are probably of considerable prognostic importance.

Arkansas Medical Society Journal, Little Rock

May, X, No. 12, pp. 297-328

26 Meningitis. J. B. McElroy, Memphis, Tenn.
27 Organized Medicine. P. Hunt, Texarkana.
28 Preservation of Public Health. L. H. Lanier, Texarkana.

Boston Medical and Surgical Journal

May 21, CLXX, No. 21, pp. 781-820

29 Feeble-Mindedness as Leading Social Problem. E. E. Southard, Boston.
30 *Under What Conditions Is Diagnosis of "Tuberculosis" in Children Justified? J. B. Hawes II, Boston.
31 Causes and Their Relation to Treatment of Lateral Curvature of Spine. Z. B. Adams, Boston.
32 Nitrogenous Metabolism in Case of Chronic Myelogenous Leukemia. H. W. Goodall, Boston.
33 Aural Vertigo. D. H. Walker, Boston.
34 Report of Leukocytic Inclusion Bodies. L. W. Hill, Boston.
35 *Poor Health in Child: Some Developmental Influences and Their Importance to Adult. J. Bryant, Boston.

30. **Diagnosis of "Tuberculosis" in Children Justified.**—In the absence of advanced tuberculosis or a recent infection with some acute disease which might cause a negative reaction, Hawes claims that a diagnosis of tuberculosis is rarely justified unless there is a positive skin tuberculin reaction.

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Constitutional signs and symptoms are usually present and require careful study and investigation. If such symptoms are absent, a definite diagnosis is unwise, although this should not interfere with placing the child under proper treatment. Signs referred to the chest and lungs are of interest and value, if present; if absent, their absence should not preclude a definite diagnosis. If present without constitutional disturbance, look out for chronic influenza and pneumococcus infections. Positive roentgenographic evidence is of value in conjunction with other evidence. Diagnoses based on the roentgenogram alone are apt to be wrong, and are unjust to the patient.

35. **Poor Health in Child.**—Adhesions, ptoses and other demonstrable physical defects, according to Bryant, are of very common occurrence at all ages in both sexes, but the frequency of these defects in the adult is not markedly greater than in the child. It is not improbable that such defects may stand in a causal relation to some at least of the disabilities of the child and the adult. An anomalous ligament of Treitz may be a factor in obstruction of the duodenum. A simple double measurement of the thorax is presented, which is likely to prove an aid in the recognition of certain intra-abdominal abnormalities. This measurement is in a variable degree an indicator of physical efficiency, and is useful after the age of 5 years. The treatment of developmental defects is primarily non-surgical, and if properly carried out in the child is preventive, in that it will result in creating an adult not only personally more efficient, but one who may entertain the hope of having physically more perfect children.

Canadian Medical Association Journal, Toronto

May, IV, No. 5, pp. 371-468

36 Auto-Infection Associated with Intestinal Canal. G. E. Armstrong, Montreal.
37 Acidosis. V. E. Henderson, Toronto.
38 *Mentally Defective. G. S. Mundie, Montreal.
39 *Destruction of Sebaceous Glands, Sweat Glands, Hair Follicles and Diseases Thereby Cured. A. H. Pirie, Montreal.

38. **Mentally Defective.**—Mental deficiency is a defect of the brain, not a disease. It cannot be cured, but the condition of the child can be improved to a greater or less degree by careful and suitable treatment and training. The greatest etiologic factor is heredity; other important factors are the condition of the mother during gestation, tuberculosis, alcoholism and injuries after birth. Mundie urges that all mental defectives should undergo a thorough medical examination, and any defect in vision, hearing or enlarged tonsils and adenoids corrected. Training should be carried out in institutions, and the teaching should be objective.

39. **Destruction of Sebaceous Glands.**—The following doses of Roentgen rays are prescribed by Pirie, for treatment of the conditions mentioned: Sycosis: 10 X one application to the diseased area. Acne vulgaris: 3 X to the diseased area on three consecutive days. Wait for three weeks and repeat. Continue this till six treatments have been given. Tinea tonsurans: 10 X to the whole scalp, one treatment only. Rodent ulcer: 10 X once a month till ulcer is healed, then once a month for six or twelve more treatments, or 30 X or 40 X for one treatment only. Hyperidrosis: 10 X once a month for four months. Then 8 X for two more treatments. Hypertrichosis: As for hyperidrosis. Cheloid: 3 X once a week for six to twelve months.

Delaware State Medical Journal, Wilmington

March, V, No. 4, pp. 1-26

40 Gonorrhea in Female—Its Gravity: Far-Reaching Results: Prophylaxis: Treatment. E. E. Montgomery, Philadelphia.

Georgia Medical Association Journal, Augusta

May, IV, No. 1, pp. 1-32

41 Chronic Suppuration of Middle Ear. F. M. Cunningham, Macon.
42 Salvarsan in Treatment of Syphilis and Parasyphilis of Nervous System. J. N. Brawner, Atlanta.
43 Physician—His Duties and Obligations. R. B. Barron, Gray.
44 Pituitrin. M. T. Benson, Atlanta.
45 Infant Mortality. N. M. Moore, Augusta.
46 Local Anesthesia. R. Duffy, Plant City, Fla.

Indiana State Medical Association Journal, Fort Wayne

May 15, VII, No. 5, pp. 195-254

47 Need of State Detention Hospital for Early Diagnosis and Treatment of Acute Mental Diseases. F. M. Terflinger, Logansport.
48 Crime as an Expression of Feeble-Mindedness. D. C. Peyton, Jeffersonville.
49 *External Bone Plating. H. R. Allen, Indianapolis.
50 Paratyphoid and Typhoid. W. Shimer, Indianapolis.
51 Colonic Alimentation. A. Graham, Indianapolis.

49. **External Bone Plating.**—Allen recommends an external plate poured and cast over the heads of nails whose shafts penetrate two hard layers of bone. This external cast is melted or the shafts of the nails cut as soon as bone union is established. The nails it is claimed are withdrawn as easily and as painlessly as removing sutures after an external wound heals. After several years' experience with projecting wires and nails, Allen has thus far not had a single case of infection. In removing or casting the external plate there is little danger of burning the patient, since the metal Allen uses is a low-melting alloy. It is composed of a combination of metals that take a hard tough temper if cooled suddenly, and becomes more or less brittle if cooled slowly.

Concerning the nails or pins or wires, Allen recommends long, thin, small-headed wire nails or brads and drills that make neat fitting holes. The nails should pass through two layers of hard bone, because this provides much more strength than can be secured by five or ten times as many screws that merely have 1/16 to 3/16 of an inch bearing in hard bone, while the greater proportion of the screw length is left projecting into soft bone-marrow or cancellous tissue. The nails, unlike the screws, should never be parallel. The nails may be made of any good strong metal or may be plated with nickel or silver or other metal. They may have round or polyhedral sides, with smooth or uneven shafts, with or without projections or bends. The ends may be alike or unalike, a head at one end and a point at the other, or terminating in bends or knobs, or eye-holes, or notches, or have castings on their end or ends.

An open incision is made for observing the fractured zone. Holes are drilled and nails put through the holes about 1 inch or more from the fractured zone. The bones are set accurately by hand under direct vision and digital contact; while accurately set, the cast is made. If the work is properly done the bones remain in accurate position. If the soft tissues bind against the shafts of the nails, cut the soft tissues and relieve the tension. Let the soft tissues fit loose about the projecting nails, because this means unqualified comfort after the patient comes out from the anesthesia. Allen always uses an auxiliary splint made out of wire and adhesive plaster.

Iowa State Medical Society Journal, Washington

May, III, No. 11, pp. 697-799

52 Infections from Gas Bacilli. W. W. Bowen, Ft. Dodge.
53 Myocarditis. W. L. Downing, Moulton.
54 Chronic Interstitial Nephritis. H. M. Vinson, Ottumwa.
55 Pneumatic Rupture of Bowel. J. D. Blything and P. A. Bendixen, Davenport.
56 Diagnosis and Treatment of Fractures Involving Joint. A. P. Stoner, Des Moines.
57 Indications for Use of Lane Plate. J. W. Martin, Des Moines.
58 Model Labratory for General Practitioner. H. Albert and M. E. Scheetz, Iowa City.

Journal-Lancet, Minneapolis

May 1, XXXIV, No. 9, pp. 231-259

59 Fractures in Neighborhood of Joints. (To be continued.) J. B. Murphy, Chicago.
60 Case of Septic Thrombophlebitis of Pelvic Veins. C. F. Lewis, Austin.
61 Rubber-Tube in Reconstruction of an Obliterated Bile-Duct: an Hepaticoduodenostomy. A. T. Mann, Minneapolis.
62 Mind in Medicine. C. Johnson, Willmar.
63 Report of Case of Traumatic Separation of Symphysis Pubis. F. R. Wright, Minneapolis.

May 15, No. 10, pp. 261-287

64 Fractures in Neighborhood of Joints. (To be continued.) J. B. Murphy, Chicago.
65 Operative Treatment of Fractures Demonstrating Use of Steel Plates for Correction of Bad Fractures. A. E. Benjamin, Minneapolis.

Journal of Medical Research, Boston

May, XXX, No. 2, pp. 87-260

66 *Studies in Anaphylaxis. VI. Study of Cellular Theory by Graphic Method. R. Weil, New York.
67 *Does Internal Administration of Potassium Iodid Have Any Effect on Thyroid Grafts in Guinea-Pigs? C. Smith, St. Louis.
68 Leprosy: Flies in Relation to Transmission of Disease. J. A. Honeij and R. R. Parker, Cambridge.
69 *Serologic Investigations in Typhus Exanthematicus. B. Jablons, New York.
70 Experiments on Cavity Formation and Fever in Tubercular Rabbits. I. Ayer, Philadelphia.
71 *Experimental Study of Relation of Bile to Ulceration of Mucous Membrane of Stomach. G. M. Smith, St. Louis.
72 *Statistical Study of Normal Growth, Atrophy and Hypertrophy of Middle Coat of Radial Artery. A. H. MacCordick, Montreal.
73 *Neuroblastomata: with Study of Case Illustrating Three Types That Arise from Sympathetic System. H. R. Wahl, Cleveland.

66. **Studies in Anaphylaxis.**—The anaphylactic condition, Weil claims, is entirely dependent on the sensitization of the cells of the body. All conditions which in any way influence the degree of sensitiveness of the cells in the same degree alter the anaphylactic state, or sensitiveness, of the animal. The presence of immune bodies in the blood, whether in large or in small amounts, does not in the slightest degree contribute toward the production of the anaphylactic response in the guinea-pigs.

67. **Administration of Potassium Iodid.**—Smith found that the administration of potassium iodid to a guinea-pig in which a piece of its own thyroid gland has been transplanted does not seem to have any marked effect on the behavior of the graft. He did not find atrophy of the grafts, as reported by Cristiani, after the use of thyroid tablets. However, thyroid grafts show early central necrosis. The peripheral acini only remain intact. Regeneration takes place by the growth of thyroid tissue from the peripheral acini toward the center.

69. **Typhus Exanthematicus.**—The sera of patients infected with Typhus exanthematicus, Jablons claims, give the Wassermann complement-deviation test, as observed in syphilis, framboesia, leprosy, scarlet fever and malaria. This reaction, he says, need not be carried out with typhus organ extract; since the components that give the Wassermann syphilis test also give it here, and is therefore not specific for this disease. The absence of a positive Widal agglutination test in the presence of an epidemic he considers of value in making the diagnosis. The absence of positive bacteriologic findings and the presence of the Wassermann complement-deviation test point to the fact that the cause of the disease is to be sought for among the class of protozoan organisms.

71. **Experimental Study of Bile.**—When introduced into the stomach of the cat or the dog, Smith found that bile in the presence of an excess of 0.5 per cent. hydrochloric acid may cause injury to gastric mucous membrane, whereas bile 0.5 per cent. hydrochloric acid introduced alone into the stomach is without harmful effect. Lesions of the gastric mucous membrane produced by bile in the presence of an excess of 0.5 per cent. hydrochloric acid consist of necrosis of epithelium and interglandular tissue with hemorrhages into the mucous membrane, as a result of which small superficial ulcers may form. Ulceration of gastric mucous membrane, following the introduction of bile and hydrochloric acid into the stomach injected by way of the duodenum, is produced most readily between the third and the fifth hour after meals; least readily in the fasting stomach or shortly after the ingestion of food. If confined in the fasting stomach by ligating the esophagus and the duodenum, bile in the presence of an excess of 0.5 per cent. hydrochloric acid is more toxic for gastric epithelium than either bile alone or bile in the presence of an alkaline solution, such as 0.5 per cent. sodium carbonate. The presence of mucus in the stomach protects gastric epithelium against injury by bile and hydrochloric acid.

72. **Middle Coat of Radial Artery.**—MacCordick claims that the arterial musculature grows like other tissues, increasing both in the number and the size of the individual fibers. It appears to reach its optimum normal development between the ages of 20 and 30 years. While this is so, it retains its power of growth and proliferation throughout life, or certainly up to 76 years. It exhibits well-pronounced capacity to undergo both individual hypertrophy, that is, increase in size of the individual fibers, and numerical hyperplasia, that is, increase in the number of its constituent fibers. Of these, numerical hyperplasia is the more frequently encountered, and this particularly in cases of general arteriosclerosis and chronic nephritis. In the medical overgrowth of general arteriosclerosis, "zonal hyperplasia" is occasionally a marked feature—a numerical hyperplasia showing itself particularly in the inner zone of the media. In like manner the arterial musculature may exhibit both atrophy and numerical hypoplasia. These conditions may be either generalized or local. There are indications that the hypertrophied and hyperplastic media is liable to give place to a condition of atrophy.

73. **Neuroblastomata.**—Nerve tissue may give rise to new growths, which are properly called neuroblastomata. They may occur in any part of the nervous system, and Wahl says are of two types, according as they are composed chiefly of differentiated or undifferentiated elements. The neurocytoma is the undifferentiated type arising in the cerebrospinal nervous system. The corresponding type derived from the sympathetic system is the malignant neuroblastoma of the sympathetic nervous system or the "sympathoma embryonale." The ganglioneuroma and the chromaffin tumor represent the differentiated nerve growths, the latter taking its origin only in the sympathetic nervous system, the former arising also in the cerebrospinal nervous system. Most neuroblastomata, especially of the undifferentiated type, arise in the sympathetic nervous system.

Maine Medical Association Journal, Portland

May, IV, No. 10, pp. 1841-1882

74 Conservative Treatment of Chronic Suppurative Otitis Media. J. H. Allen, Portland.
75 Conservation of Vision. F. Y. Gilbert, Portland.

Medical Record, New York

May 23, LXXXV, No. 21, pp. 921-966

76 Progress of Education of Deaf and Dumb, and Some of Difficulties of Aural Instruction. N. J. P. Van Baggen, Hague, Holland.
77 *Calcium Therapy of Tuberculosis. M. Kahn, New York.
78 Pulse-Pressure in Diagnosis and Prognosis. J. S. Lankford, San Antonio, Tex.
79 French Aspect of Functional Liver Testing. M. E. Rehfuss, Philadelphia.
80 *Report of One Hundred and Twenty-Eight Cases of Scarlatina Treated by Vaccines and Method of Milne. E. C. Schultze and L. A. Goldberger, New York.
81 Study of Bacteriology of Posterior Nasopharynx in Scarlatina. N. S. Ferry, Detroit.
82 *Experiences with Bacterial Vaccines in Scarlatina. G. L. Kiefer and N. S. Ferry, Detroit.
83 Retroperitoneal Hernia of Appendix into Ileo-Appendicular Fossa. I. Seff, New York.

77. **Calcium Therapy of Tuberculosis.**—In looking over the mass of literature on this subject, Kahn says one is left in doubt whether the use of lime in the treatment of tuberculosis is to be recommended. There is, however, no danger in its use, and according to the observations of a number of physicians, it is of marked benefit.

80. **Scarlatina Treated by Vaccines and Method of Milne.**—One hundred and twenty-eight scarlet-fever patients were treated by Schultze and Goldberger, with a vaccine prepared from the *Micrococcus "S"* (Schultze). In addition to the vaccine injection, all the patients received a preliminary course of eight or ten doses of calomel, 1/10 to 1/4 gm., and castor oil or citrate of magnesia, and also had their throats swabbed with a 10 per cent. solution of phenol in oil and their bodies rubbed with a 10 per cent. solution of eucalyptus in oil, as advocated by Milne. A few patients after having been subjected to Milne's treatment, passed smoky urine, an evidence of too great absorption of phenol. The authors temporarily discontinued the use of phenol and the urine promptly cleared. They then diminished the strength of the phenol solution to 5 per cent. and have been using the 5 per cent. strength ever since, with no untoward effects. Milne advises painting the tonsils with phenol solution every two hours for the first twenty-four hours, later diminishing the frequency according to the appearance of the throat.

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The authors suggest painting the posterior pharyngeal wall, as well as the tonsils, and continue painting until cultures from the throat show no more "S" cocci. The rubbing in of the eucalyptus oil they found was very soothing, and in many cases relieved the intense itching, which accompanied desquamation. The phenol swabbing of the throats and the rubbing in of eucalyptus oil in the bodies were continued throughout the course of the disease, and in a few cases were also used as a prophylactic measure on some of the healthy members of the family with very good result. The vaccines used were three in number, composed of the following organisms: (1) *Micrococcus "S,"* 400 million per c.c.; (2) streptococcus, 400 million per c.c.; (3) *Micrococcus "S"* and streptococcus (combined), 400 million per c.c. In 103 of the cases only culture "S" vaccine was injected. The other twenty-five cases received the *Micrococcus "S"* and streptococcus vaccine (combined), but as the results obtained by the use of the combined vaccine did not seem to be any better than with the culture "S" vaccine alone, the use of the combined vaccine was discontinued. The dosage of each injection was estimated according to the age of the patient and the severity of the disease.

Of the 103 cases that were given only "S" vaccine, 55 received 1 c.c., 41 received 2 c.c., 5 received 3 c.c., and 2 received 4 c.c. Of the 25 cases that were given the combined vaccine, 10 received 1 c.c., 10 received 2 c.c., 2 received 3 c.c., 2 received 4 c.c. and 1 received 7 c.c. In 121 of the whole series of 128 cases, only one injection was found necessary. Of the other 7 cases, 3 cases received two injections, 2 cases received three injections and 2 cases received four injections. The necessity for reinjecting a patient was judged by the reaction obtained from previous injections.

In most of the cases the reaction was rather striking. The temperature fell by crisis, reaching normal in from twenty-four to seventy-two hours; the general condition of the patient improved markedly; whereas, before injection, many of these patients "looked sick," soon after the injection, however, their general mental and physical conditions showed such improvement that their facial expressions were those of well-being rather than of severe sickness; usually they felt hungry and cried for food, although in some cases the rectal temperature registered 104 or 105 degrees. Of the 128 cases, there were 2 deaths (1.5 per cent.). Seven were complicated with diphtheria. Complications were: adenitis, 7 (5.46 per cent.); nephritis, 7 (5.46 per cent.); otitis media, 3 (2.34 per cent.); arthritis, 3 (2.34 per cent.); pneumonia, 1 (0.86 per cent.); measles, 1 (0.86 per cent.); arthritis and endocarditis, 1 (0.86 per cent.); total, 20 (15.62 per cent.).

82. **Bacterial Vaccines in Scarlatina.**—The bacterial vaccines employed by Kiefer and Ferry were as follows: A vaccine composed of streptococci isolated from the nasopharynx of individuals suffering with typical symptoms of scarlatina; a vaccine composed of an organism isolated from the same situation, called *Micrococcus "S,"* and a vaccine composed of a mixture of the two. These vaccines which were polyvalent, being composed of several strains of each organism, contained 400 million organisms per c.c. each. Two lines of treatment were undertaken: prophylactic and curative, the nurses receiving the prophylactic treatment and the patients the curative. For curative purposes the three vaccines were used as described, while, for prophylactic purposes, the *Mic. "S"* vaccine alone was tested.

The patients treated were proportioned as follows: Those receiving the streptococcus vaccine, 29; the *Mic. "S"* vaccine, 44; and the combined vaccine, 33. The vaccines were given about every two or three days, starting with one-half a cubic centimeter and increasing the dose as the symptoms warranted; and the treatment, as a rule, was continued until the termination of the case. No set rules for the course of treatment were adhered to; this was left entirely to the judgment of the physician in charge. The vaccines which contained the streptococci had an advantage over the ones containing the *Mic. "S"* alone, as well as over the usual expectant treatment Whether the *Mic. "S"* bears any relation to the disease, it would appear from the study of these few cases that, as a curative agent, a vaccine composed of this organism alone would not be indicated. This is also partly borne out by the fact that the *Mic. "S"* is more easily isolated and is found in larger numbers in the early stages of the disease, and has not been isolated from any of the discharges. For prophylactic purposes the *Mic. "S"* vaccine was given in three doses of increasing strength with three- to five-day intervals between doses. The doses contained 200, 400 and 800 million bacteria, respectively. Up to the time of starting this work six nurses out of about 100 had contracted the disease. However, since the introduction of this vaccine as a prophylactic measure among all nurses who had not already had the disease, not a case has been reported. It is interesting and rather significant also that during a period of three months when the prophylactic treatments were discontinued, four out of about twenty nurses became infected.

Military Surgeon

May, XXXIV, No. 5, pp. 401-500

84 "Field Service Regulations, U. S. Army, 1914," and "Organization Tables, U. S. Army, 1914." E. E. Persons, U. S. Army.
85 Wounded at Ojinaga. L. C. Duncan, U. S. Army.
86 Report of One Hundred Wounds, Received in Battle of Nuevo Laredo, Jan. 1 and 2, 1914. H. A. Phillips, U. S. Army.
87 Incinerators at San Antonio Maneuver Camp. F. W. Foxworthy, U. S. Army.
88 Importance of Blood-Pressure Readings in Annual Examinations of Field Officers. R. H. Pierson, U. S. Army.
89 Army Medical Corps. H. H. Baketel, U. S. Army.

Mississippi Medical Monthly, Vicksburg

May, XIX, No. 1, pp. 1-22

90 Hypopituitarism. J. B. McElroy, Memphis, Tenn.

Northwest Medicine, Seattle, Wash.

May, VI, No. 5, pp. 121-154

91 Recoverability of Insane. W. House, Portland, Ore.
92 Psychic Mind in Medicine. W. N. Pugh, Salt Lake City.
93 Urobilin in Urine. G. Baar, Portland, Ore.
94 Direct Transfusion of Blood with Special Reference to Its Use in Pernicious Anemia. W. C. Spaidel, Seattle.
95 Case of Status Epilepticus Cured by Decompression Operation. D. A. Nicholson, Seattle.
96 New Hand-Driven Circular Bone Saw Including Flexible Shaft. H. A. Shaw and J. T. Mason, Seattle.
97 Medical Defense by State Association. E. E. Maxey, Boise, Ida.

Ohio State Medical Journal, Columbus

May, X, No. 5, pp. 263-326

98 Results of Treatment of Epilepsy with Crotalin. M. L. Austin, Gallipolis.
99 Case of Renal Hematuria, with Three Anomalous Renal Arteries. C. M. Harpster, Toledo.
100 Infant Welfare Campaign and Work Done in Cleveland. C. W. Wyckoff, Cleveland.
101 Intesinal Stasis—Internal Administration of Paraffin Oil. R. R. Kahle, Columbus.
102 Cerebrospinal Meningitis with Special Reference to Selected Cases. M. A. Brown, Cincinnati.

Oklahoma State Medical Association Journal, Muskogee

May, VI, No. 12, pp. 495-538

103 Unusual Cases and Incidents of Professional Career. W. Nairn, Nowata.
104 Cirrhosis of Liver. R. E. Pryor, Bartlesville.
105 Simplified Baldy-Webster Operation. W. E. Dicken, Oklahoma City.
106 Determination of Renal Efficiency. H. Reed, Oklahoma City.
107 Training of Expectant Mothers and Care of Infants. L. H. Huffman, Hobart.

Ophthalmic Record, Chicago

May, XXIII, No. 5, pp. 217-270

108 Glaucoma as Contributing Etiologic Factor in Insanity. Case Report. C. B. Welton, Peoria.
109 Retinochoroiditis Juxtapapillaris. L. F. Appleman, Philadelphia.
110 Diagnosis of Heterophoria from Portrait. S. Mitchell, Hornell, N. Y.
111 Pseudo-Optic Neuritis. F. P. Calhoun, Atlanta, Ga.
112 Parinaud's Conjunctivitis. N. W. Price, Niagara Falls, N. Y.
113 Light. H. E. Goetz, Knoxville, Tenn.
114 Castor Oil as Menstruum for Cocain. S. Mitchell, Jr., Hornell, N. Y.
115 Soap and Water and Opticians. C. H. May, New York.
116 Albinism of Eyes without Involvement of Hair or Skin. W. E. Gamble, Chicago.
117 Keratome, which Facilitates the Elliot Trephining Operation. G. B. Jobson, Franklin, Pa.

118 New Method of Preparing Eye for Microscopic Sections. H. R. Wright, Columbus, O.
119 Glioma of Retina in Child Eight Months Old. Case Report. B. Gleeson, Danville.

Ophthalmology, Seattle, Wash.

April, X, No. 3, pp. 375-590

120 Basis of Light Treatment for Diseases of Eye. F. Schanz, Dresden, Germany.
121 Observations on Ophthalmology in Orient. F. B. Tiffany, Kansas City, Mo.
122 Two Unusual Cases of Pulsating Exophthalmos. W. O. Maher, Sydney, Australia.
123 Orbital Cellulitis with Total Loss of Vision. F. B. Tiffany, Kansas City, Mo.
124 Bilateral Coloboma of Lens. F. P. Calhoun, Atlanta, Ga.
125 Edema of Macular Area of Retina. Report of Case. C. C. Stuart, Cleveland.
126 Temporary Injurious, Accidental Action of Secacornin of Eye. J. Fejér, Budapest.
127 Use of Jackson's Cross Cylinders in Estimating Refraction. J. W. Kimberlin, Kansas City, Mo.
128 Intracapsular Cataract Operation in Immature Cataract. W. A. Fisher, Chicago.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

May 9, I, No. 2784, pp. 1001-1052

1 *Cause and Cure of Cancer Viewed in Light of Recent Radiobiologic Research. W. S. Lazarus-Barlow.
2 Radium in Treatment of Malignant Disease. Report of Eight Cases. J. R. Riddell.
3 *Intramedullary Tumor of Spinal Cord: Treatment by Laminectomy and Application of Radium. J. M. Clarke and R. G. P. Lansdown.
4 *Respective Advantages and Disadvantages of Roentgen Rays and Radium in Treatment of Cancer. F. Hernaman-Johnson.
5 Painful Shoulders and Their Treatment by Physical Measures. J. J. Grace.
6 Treatment of Neuritis by High Frequency Current: Report of Nine Cases. W. F. Somerville.
7 Interlobar Empyema. G. Marshall.
8 Veronal Poisoning: Recovery after 100 Grains. H. R. Souper.

1. **Cause and Cure of Cancer.**—From the laboratory point of view, Lazarus-Barlow tries to show how radiobiologic research indicates radium and other radiations as a very special agency wherewith to treat cancer; how certain disadvantages are unavoidable and others avoidable with our present knowledge; how, and in what directions, research should be conducted to turn present failure into future success. The ideal he holds is that in radium and other radiations we hold the solution of the cure of cancer. In a sufficient dose radium and other radiations are capable of killing every type of cell met with in cancer.

The action of radiations on cells, he claims, is selective, or conversely; all varieties of cells are not equally vulnerable to radiations. There is some evidence that an active immunity is produced as the result of acting on malignant cells with radium. Lazarus-Barlow insists that microscopic examination by a competent morbid histologist should be made of every case subjected to radium treatment. The amount of radium in use should be verified periodically by a competent physicist. It should be recognized that the metabolic processes of every patient after exposure to a considerable dose of radium are profoundly modified, at least for a time. Treatment with radium should not follow immediately on operation. If radium treatment of a malignant new growth be decided on, such treatment should not be preceded by complete removal of the main part of the growth.

Finally, Lazarus-Barlow states that, whatever treatment may be the case in the future, for the present radium treatment of malignant disease should be confined to those cases for which modern surgery cannot offer a fair prospect by operation. But this is the furthest that one can go. At present, where modern surgical operation can offer a fair prospect of satisfactory result, the knife must be recommended in preference to every other agent, and this is as true for recurrences as for the primary disease.

3. **Intramedullary Tumor of Spinal Cord.**—The case reported by Clarke and Lansdown was one of intramedullary tumor of the lumbosacral region of the cord, found irremovable at operation, some weeks later treated by placing a tube containing 50 mg. radium for twenty-two hours in the spinal canal, with the result of steady and progressive improvement in movement and sensation in the previously paralyzed lower limbs, until the onset of an acute cystitis with *B. coli* infection wore out the patient's strength and caused death.

4. **Roentgen Rays and Radium in Treatment of Cancer.**—In early cases, whether for preoperative or postoperative irradiation, the Roentgen ray is preferred by Hernaman-Johnson to the radium tube. When surgical removal is impossible, he says, a tube of radium should be buried in the center of the tumor, but Roentgen rays should be used, in addition to the surrounding area, and to any organs where a metastasis is likely to occur. This combined treatment may result in some actual necrosis in the immediate neighborhood of the radium, but so long as this is confined to the interior of the neoplasm, no harm will result. Finally, radium therapy is Hernaman-Johnson's method of choice in cancer of the vagina, uterus and rectum; but even here he states Roentgen rays form a useful adjunct, so far as adjacent parts are concerned.

Dublin Journal of Medical Science

May, III, No. 509, pp. 321-400

9 Case of Phenol Poisoning. W. G. Smith.
10 Typhus. Its Etiology and Treatment. D. K. Milne.
11 Notification of Tuberculosis in Ireland: Its Failure. J. Moore.
12 Disordered Bladder Function in Nervous Disease. W. Boxwell.

Edinburgh Medical Journal

May, XII, No. 5, pp. 385-480

13 Diffuse Sclerodermia. B. Bramwell.
14 Biometric Analysis of Some Insemination Labor and Menstrual Labor Curves in Certain Mammalia. D. B. Hart.
15 Subconjunctival Cataract Extraction. A. MacGillivray.
16 Case of Acute Suppurative Otitis Media, Purulent Labyrinthitis and Leptomeningitis without Rupture of Tympanic Membrane. J. S. Fraser.
17 Anglo-Indian Surgeons. F. H. Garrison.

Glasgow Medical Journal

May, LXXXI, No. 5, pp. 321-399

18 Radium: Question of Supply for Glasgow. Collected Opinion from Workers at Home and Abroad. J. MacIntyre.
19 Myeloid Tumors of Tendon Sheaths. Report of Case. T. P. Grant and M. J. Stewart.
20 Occurrence of Wassermann Reaction in Serum of Children of Poorer Classes. W. M. Elliott.

Journal of State Medicine, London

May, XXII, No. 5, pp. 257-320

21 *Pathogenicity and Virulence of Bacteria. F. H. Thiele and D. Embleton.
22 Sexual Disease and Individual. A. Corbett-Smith.

21. **Pathogenicity and Virulence of Bacteria.**—The authors consider that the toxicity of an organism hitherto supposed to possess an endotoxin or exotoxin really depends on the liberation of toxic proteoclastic degradation bodies from it by the ferments of the host. The pathogenicity of an organism depends on the relationship between the ferment activity and the amount of bacterial protoplasm, whereby toxic degradation bodies accumulate in sufficient quantities to cause symptoms. The virulence of an organism depends on the power that the organism has of exuding around itself a zone of its own protoplasm, in which the toxic degradation bodies liberated by the ferments can be maintained in position; to act, on the one hand, as an aggressive shield against the phagocyte, and a protection against the further action of the ferment on the other hand. The infectivity of an organism depends on (*a*) its virulence, and (*b*) the relative activity of the ferments of the host.

Journal of Tropical Medicine and Hygiene, London

May 1, XVII, No. 9, pp. 129-144

23 *Murmekiasmosis Amphilaphes. A. J. Chalmers and J. B. Christopherson.

23. **Murmekiasmosis Amphilaphes.**—The authors have observed a peculiar form of cutaneous wart characterized by an extraordinary facility for growth, causing it to spread and to occupy practically the whole of the right side of the face

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and neck, involving the external auditory meatus, destroying the right eye and even invading the mucous membranes of the mouth, gums, tongue and throat. Microscopically, the points of interest about this curious warty mass are the presence of numerous cryptococci and the fact that the cutaneous warts are largely composed of an adenoma derived from sebaceous glands which feature is absent in those on the tongue. The disease is readily curable by operation. The most important clinical feature of the disease is the wart, and therefore the authors propose to name this apparently new human disease "*Murmekiasmosis Amphilaphes.*"

The leading diagnostic features are: (*a*) The presence of a warty growth, the individual members of which are painless, firm, do not readily bleed and do not readily ulcerate, but which tend to slowly spread and to endanger or destroy important organs. (*b*) The proliferation of the germinal layer of the sebaceous glands in the cutaneous warts (the authors can well imagine a condition in which the proliferation would produce a carcinomatous and not an adenomatous appearance), with the absence of this feature in the lingual warts. (*c*) The non-involvement of lymph-nodes, the non-formation of metastases and the non-malignancy of the growth. (*d*) The non-recurrence after removal. (*e*) The fact that the warts grow on healthy skin and not on cicatrices, and do not grow at first in any special relationship to mucous openings or moist areas of skin. The only effectual treatment is removal by means of a series of large dissecting operations, when the whole growth comes away like mats of warts, leaving large areas to be covered in by skin flaps and by skin grafting. Damaged organs, such as the eye, must be removed.

Lancet, London

May 9, I, No. 4732, pp. 1299-1372

24 Some Modern Theories Concerning Hysteria. J. A. Ormerod.
25 Massive Collapse of Lungs Following Abdominal Operations. T. R. Elliott and L. A. Dingley.
26 Tumors of Urinary Bladder. R. H. J. Swan.
27 *Death from Hyperacute Streptococcal Infection (Strepticemia). G. Jefferson.
28 Congenital Icterus. S. Sheill.
29 *Rôle of Crucial Ligaments in Hemarthros and Injuries to Knee. E. M. Corner.
30 Case of Carcinoma of Breast in Male. H. V. Welch.
31 *Aspiratory Function of Heart. H. W. Verdon.

27. Hyperacute Streptococcal Infection.—The radical removal of tuberculous glands in the neck, while in Jefferson's opinion the only rational procedure, is not unfraught with danger. This is especially the case in the presence of a sinus. Two cases operated on by Jefferson died from a fulminating streptococcal infection, one twelve hours, and the other twenty hours after operation. The exact source of infection was not discovered, but Jefferson believes was probably from the walls of the sinuses present. He emphasizes that prophylactic treatment should be carried out for a few days before operation. The sinuses should be well swabbed out with iodin or similar antiseptic. The wound should be well washed out with saline before it is closed and drainage employed, preferably through a separate stab wound in the skin flap. In children at least probably no treatment will avail when once the bacteriemia is established.

29. Crucial Ligaments in Hemarthrus and Injuries to Knee.—Complete rupture of the internal lateral ligament of the knee, Corner says, is impossible without a complete rupture of the crucial ligaments. Partial rupture of the internal lateral ligament is produced by the crucial ligaments withstanding the strain of the accident and preventing complete rupture. The results of treatment will be satisfactory. Complete or severe lacerations of the internal lateral ligament will always be accompanied by a lesion of the crucial ligaments, even to the complete rupture of the anterior crucial ligament. The results of treatment vary *pari passu* with the extent of the laceration of the crucial ligaments. The convalescence may be long and the final result unsatisfactory.

31. Aspiratory Function of Heart.—The heart, Verdon says, is a pump and, like the mechanical pump, possesses aspiratory and propulsive powers—aspiratory power to draw supplies from pulmonary and systemic veins, and propulsive power to discharge the contents of its ventricles into pulmonary and systemic arteries. The heart works in a minus-pressure environment which at the height of inspiration registers 30 to 50 mm. Hg and during expiration falls to half this measure. Since fluids flow in the direction of the least resistance a centripetal current of blood from pulmonary and systemic sources sets in toward the minus-pressure environment of the heart, filling the great tributary veins, the auricles, and the ventricles. Intrathoracic minus-pressure thus constitutes a potential aspiratory force which keeps the central venous system perpetually full of blood, and maintains this section of the circulation under favorable conditions for the action of the kinetic aspiratory function of the ventricles.

The kinetic aspiratory function is intermittent and exercises itself only during systole. When the cone of the heart contracts and expels the contents of the ventricles into pulmonary and systemic arteries it vacates a section of the pericardial sac, a space which is instantly filled by the head of the venous column entering and expanding the auricles—the advance movement being rendered imperative by the *vis a tergo* of atmospheric pressure exercised on the contents of pulmonary and systemic veins lying at the foot of the venous column. The aspiratory function may be lowered by asthenic states of the myocardium or by reduction of the minus-pressure of the environment. When aspiratory function is lowered certain phenomena occur. Congestion of the pulmonary stream and stasis in bronchiolar radicles display themselves in symptomatic expression by asthma and dyspnea. The barrel chest of emphysema is the result of attempts made by inspiratory musculature to neutralize the untoward effects of minus-pressure insufficiency.

Annales de Gynécologie et d'Obstétrique, Paris

April, XLI, No. 4, pp. 193-256

32 Signs of Normal Pregnancy. A. Pinard.
33 *Rupture of Superficial Layers of Body of Uterus in Case of Premature Separation of Normally Located Placenta. M. Fraipont.
34 Kyphotic Pelvis and Cesarean Section. A. Herrgott.
35 The False Appendicitis of Pregnant Women. M. Vautrin.

33. Incomplete External Rupture of Body of Uterus.—Fraipont reports a fatal case of this rare complication. The placenta was normally located but had separated prematurely. Necropsy showed several superficial fissures in the peritoneal investment and in the subjacent muscular tissue; none was deep. The premature separation of the placenta favors these superficial fissures by the infiltration of blood into the uterine wall back of the placenta site. This renders the uterine tissues friable, and the possibility of fissuring on the outside should always be borne in mind when the placenta is prematurely cast off.

Annales de Médecine et Chirurgie Infantiles, Paris

May 1, XVIII, No. 9, pp. 285-320

36 Advantage of Orthopedic Appliances in Connection with Sunlight Treatment of Surgical Tuberculosis. P. Redard.
37 Strapping Children with Pott's Disease to a Board; Lannelongue's Method. A. Broca and A. Trèves.

Archives Générales de Chirurgie, Paris

April, VIII, No. 4, pp. 385-512

38 *Snapping Hip Joint. (La hanche à ressort.) G. Coudray. Commenced in No. 3.
39 *Present Status of Operative Treatment of Pulmonary Tuberculosis. N. Lapeyre.
40 *Resection of the Knee for Osteosarcoma; Joint Implants. (Greffes semi-articulaires et résections typiques ou atypiques du genou pour ostéo-sarcomas.) P. Mauclaire.

38. Snapping Hip-Joint.—Coudray calls the true snapping hip-joint that in which there is transient and intermittent subluxation of the head of the femur outside of the acetabulum. The false snapping hip-joint is that in which the cracking noise is not produced in the joint proper but on the greater trochanter. This latter type is the most common. He shows the mechanism of each by illustrations and

states that it is liable to induce some disturbance and call for operative intervention. Various technics have been applied for the purpose and the outcome has been excellent. The anomaly may be congenital or acquired but the results of operative treatment seem to have been about equally good in each form, as he reviews the published experiences.

39. **Present Status of Operative Treatment of Pulmonary Tuberculosis.**—Lapeyre takes rather a discouraging view of "collapsotherapy," as artificial pneumothorax can be induced only in about 1 or 3 per cent. of all cases of pulmonary tuberculosis, and has cured the patient only in about 8 per cent. of the cases on record in which it has been applied. Plastic operations on the walls of the chest are too much of a strain on the patients weakened by their tuberculosis; the mortality has been high, and is far from counterbalanced by the results obtained. Resection of the diseased part of the lung, especially the apex, he regards as logical treatment, simple and not so much of a strain. Tuffier extols it and has reported one patient cured for seven years, Stretton one for six, and MacEwen one cured for eighteen years. This operation has been discarded, but Lapeyre thinks that recent progress in technic justifies taking it up again. Extrapleural pneumolysis, detaching the lung and filling in the space with fibroma tissue, omentum, Beck's paste or paraffin, has been applied by Tuffier in sixteen cases since 1910, and ten of the patients seem to be materially benefited, as also in Jessen's six cases.

40. **Resection of the Knee.**—Mauclaire states that the outcome has been very disappointing in his conservative operations on the knee for sarcoma in the bone, with the single exception of myeloplax osteosarcoma. This type of tumor does not seem to be malignant, and partial resection and scraping out the growth are safe as a rule. But with all other forms of sarcoma, round or spindle-celled, radical treatment should be urged. If refused or if the growth is of the myeloplax type, a modeling resection will generally give good results by the technic he describes, with illustrations, and compares with the literature on the subject. In one case reported he resected the epiphysis of the tibia and implanted the shaft of the tibia in the femur, giving a very good functional result.

Archivés Mens. d'Obstétrique et de Gynécologie, Paris

April, III, No. 4, pp. 353-432

41 Bradycardia after Childbirth. (Bradycardie des suites de couches.) Fabre and Petzetakis.
42 *Importance for the Prognosis of the Blood Dust in Jaundice Following Childbirth. (Valeur pronostique de la recherche des hémoconies dans les ictères de la puerpéralité.) C. Jeannin and A. Levant.
43 Legislation on Rest after Childbirth. (La loi sur le repos des femmes en couches.) A. Levant.

42. **Blood-Dust in Diagnosis of Liver Disease.**—Jeannin and Levant recall that the hemokoniae in the blood, the small refractive bodies seen in a drop of fresh blood, increase in large numbers after ingestion of butter when the liver is sound. It is thus a simple matter to examine the blood for these bodies, and if they are found in scanty numbers this may be regarded as a sign that the liver is functioning defectively. They report two cases in which they applied this alimentary lipemia test to women with severe jaundice after a childbirth. There were scarcely any hemokoniae to be discovered in the blood in the first case and the grave prognosis from this was confirmed by death the seventh day after delivery. There were no hemorrhages nor nervous phenomena, but the jaundice was extremely severe and the liver was found much degenerated, with streptococci in some of the lobules. The symptoms were not severe enough at first to suggest a fatal outcome but the absence of blood-dust in the fresh blood compelled the gravest prognosis. In the second case the jaundice was mild and there were no threatening nervous or hemorrhagic disturbances. The woman had been in labor for three days with breech presentation, temperature 38 C., pulse 120. Here too only 15 or 20 hemokoniae were found in the drop of blood, and she died the sixtieth hour after extraction of the dead fetus.

In three other cases the women presented jaundice in the course of pregnancy; one had very severe catarrhal jaundice with clay-colored stools and seemed to be in a bad way, but the hemokoniae were found in normal numbers. The woman recovered and the pregnancy proceeded normally to term. In two other cases there was subjaundice; the women did not vomit much, the diacetic odor of the breath was not at all pronounced, but the small number of hemokoniae in the blood gave the warning that the women were on the way to pernicious jaundice, and prompt interruption of the pregnancy seemed their only salvation. The test is made by examining the blood fasting and then again after the woman has eaten 50 gm. of butter on bread. Three and a half hours later the hemokoniae show up in large numbers under normal conditions, every slide in the microscope looking like a "milky way" and alive with movements of the refractive particles from the alimentary lipemia.

Archives des Mal. de l'App. Digestif, Paris

April, VIII, No. 4, pp. 181-240

44 *Diagnosis of Gastric Cancer by Cells Found in Rinsing-Water. (Le cytodiagnostic de l'estomac.) Loeper and E. Binet.
45 Uncontrollable Vomiting of Pregnancy, Sometimes Amenable to Impressive Psychotherapy. (Toxémie ou névrose?) J. Beloux.

44. **Diagnosis of Gastric Cancer by Cells Found in Rinsing-Water.**—The technic which Loeper and Binet have found so useful has already been described in these columns (May 16, p. 1587). They here review their experiences with it to date which confirm the importance of the findings with the test when applied to the fasting stomach and so cautiously that the lining of the stomach suffers no injury. It has demonstrated that purely functional stomach derangement is extremely rare, while unsuspected gastritis is astonishingly frequent, especially the superficial and transient forms with more or less congestion, desquamation and diapedesis. The cytodiagnosis reveals that a tendency to ulcer is at the bottom of many cases of supposed simple dyspepsia, and it warns when the ulcer is becoming malignant, revealing the onset of the cancer long before it can be detected in any other way. The article is accompanied by twenty-one illustrations of the types of microscopic findings found with various stomach affections, mild and malignant.

Bulletin de l'Académie de Médecine, Paris

April 21, LXXVIII, No. 16, pp. 589-608

46 *The Wassermann Reaction in the Tuberculous. M. Letulle and Others.
47 Tracheobronchial Injections in Treatment of Asthma. H. Bourgeois
48 Local Eosinophilia with Cancer of Uterus. A. Siredey.
49 Area of Dulness Simulating Ascites and Splashing Sound as Aids to Diagnosis of Intestinal Occlusion. (Valeur séméiologique de la fausse ascite et du clapotage abdominal pour le diagnostic de l'occlusion intestinale.) A. Mathieu.

46. **Wassermann Reaction in the Tuberculous.**—Letulle states that 19 per cent. of 346 tuberculous inmates of the Boucicaut Hospital gave a positive response to the Wassermann test. Only 10 of the total 64 reacting were aware of their syphilitic taint or had signs of it. Fourteen of the patients, including 8 under 36, had some aorta affection.

Journal de Chirurgie, Paris

April, XII, No. 4, pp. 425-560

50 *High Amputation of the Uterine Cervix plus Colpectomy in Treatment of Genital Prolapse. (Operation de Bouilly dans le traitement des Prolapsus genitaux.) C. Lenormant and D. P. Dutaillis.
51 *Tardy Ulnar Paralysis after Fracture of External Condyle of the Humerus. A. Mouchet.

50. **Amputation of Cervix for Prolapse.**—Ten illustrations show the various steps of this method of treating genital prolapse by supravaginal amputation of the cervix plus colpectomy involving mostly the anterior vaginal wall, and posterior colpoperineorrhaphy. This removes the hypertrophied cervix and entails more or less atrophy of the rest of the uterus while it reduces the size of the lumen and the length of the vagina and supplies a solid support for the uterus and bladder.

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51. **Tardy Ulnar Paralysis.**—Mouchet reports with illustrations four cases in which after fracture of the external condyle of the humerus, ulnar paralysis developed later after an interval of several years up to thirty. The fracture generally occurred in childhood. The result in time is a valgus deformity and this in turn stretches and induces inflammation of the ulnar nerve, and the neuritis gradually entails paralysis. Operative correction of the valgus deformity relieves the strain on the nerve and puts an end to the paralysis. A wedge-shaped resection of the humerus above the condyle, the broad end of the wedge toward the body, corrects the valgus deformity.

Journal de Médecine de Bordeaux

May 3, LXXXV, No. 18, pp. 293-306

52 Testing the Resisting Power of the White Blood Corpuscles. (Recherches sur la fragilité leucocytaire.) H. Secousse.

Journal d'Urologie, Paris

April, V, No. 4, pp. 393-544

53 *Fine Ultimate Outcome of Plastic Operations on the Urethra. (Résultats éloignés de l'urétroplastie par la tunnellisation et la greffe dermo-épidermique dans les formes graves de l'hypospadias et de l'épispadias.) G. Nové-Josserand.
54 Prostate and Prostatectomy. A. Castano.
55 Suburethral Passages. (Les canaux anormaux sous-urétraux.) F. Lévy and V. Planson.
56 Electrolytic Abortive Treatment of Gonorrhea. G. Li Virghi.
57 *Reflux of Urine by the Ureter after Nephrectomy. M. Lévy-Weissmann.
58 Test Polyuria. (Contribution clinique à l'étude de la polyurie experimentale.) E. Pirondini.

53. **Ultimate Outcome of Plastic Operations on the Urethra.**—Josserand has traced to date twenty-one patients on whom he had operated for hypospadias or epispadias several years ago. Only three were adults. The new urethra formed from the skin-epidermis flap in a tunnel hollowed out for it has stood the test of time, six, seven and twelve years having elapsed since in several of the cases. Two of the patients have had gonorrhea. He first closes the natural orifice and diverts the urine through an opening in the perineum into the urethra. The formation of the new urethra is the next step; internal urethrotomy later ensures a normal-sized lumen and then the perineal fistula is closed up. By operating thus in stages there is only exceptionally a tendency to a fistula. In three cases the artificial urethra grew wider as the boys grew generally. In one case there was a transient stricture which yielded to a few attempts at dilatation. A permanent stricture developed further in three cases in which the field of operation became infected; the infection was traced to a thread left in the new urethra to facilitate catheterization or to a retention catheter introduced into the bladder through the perineal opening. These procedures opened the door to infection which entailed slight stenosis requiring occasional dilatation to keep it under control.

57. **Reflux of Urine through Ureter after Nephrectomy.**—Weissmann says that he has been able to find only fifteen cases on record of this reflux of part or all of urine from the sound kidney. He reports a case from his own service, the urine from the bladder pouring out of the ureter stump where it had been brought out through the lumbar incision left from the nephrectomy. The flow continued uninfluenced by changes of position until finally the incision healed and the urine was voided by the natural route. The wound opened again a week later during hard coughing and part of the urine poured through it anew. The cause of the reflux is probably the irritable condition of the bladder in consequence of the tuberculous process for which the kidney was removed. The bladder contractions are so vigorous that the sphincter closes with them, and the urine is forced up into the empty ureter. The walls of the ureter, besides, have had their elasticity impaired and are unable to oppose the physiologic resistance to the reflux. It may keep up for several days or weeks, six months (Rafin), seven months or a year (Desnos). In Hartmann's case a secondary ureterectomy became necessary, but in all the others a spontaneous cure was finally realized.

Lyon Médical

April 26, XLVI, No. 17, pp. 913-968

59 *Ramifying Bone Growth in the Lungs. (Cas d'arborisation osseuse du poumon.) L. Mangini.

59. **Ossifying Sclerosis of the Lungs.**—Mangini has found records in the literature of twenty-three cases of an ossifying process ramifying in the lungs, and after searching for three years in his own necropsy work he encountered a typical example. The cadaver was that of a man of 62, and the bone needles could be felt in the lungs reaching down to the pleura, as many as ten or fifteen in each lower lobe, and cohering to form an actual arborization. The microscopic findings explain it as the ossification of fibrous nodules, the cicatrix of repeated inflammatory processes. Some of the branches of bone were 3 or 4 cm. long, and enclosed in a fibrous sheath. There was nothing to suggest tuberculosis, but for twenty-seven years the man had suffered from "colds" and cough each winter, and during the last six months the sputum had been blood-stained. There was no valvular disease but signs of incipient tabes.

Presse Médicale, Paris

April 29, XXII, No. 34, pp. 321-328

60 Early History of Percussion. E. Rist.

May 2, No. 35, pp. 329-340

61 The Campaign against Uterine Cancer. E. Forgue.
62 *Curability of Uterine Cancer. J. L. Faure.
63 Symptoms from Steeple-Skull Deformity. (Le syndrome oxycéphalique ou syndrome de cranio-synostose pathologique.) M. Bertolotti.

62. **Uterine Cancer.**—Faure remarks that the results of operative treatment of uterine cancer have far surpassed the most sanguine anticipations of even a few years ago. Most of his patients operated on from eight to sixteen years ago are in good health to-day and we can count on at least 40 per cent. of permanent cures; in his private practice fully 70 per cent. are apparently permanently cured. As long as the uterus is movable he urges surgical intervention regardless of the extent of the lesion.

Revue Pratique d'Obstétrique et de Gynécologie, Paris

April, XXII, No. 4, pp. 97-124

64 *Suture of Levator Ani Interferes with Delivery Later. (La périnéorrhaphie avec suture étendue du releveur de l'anus cause de dystocie.) L. Pouliot.
65 Atresia and Stenosis of External Os of Uterine Cervix. W. Friedmann.
66 Radiotherapy of Uterine Fibroma. R. Gauducheau.
67 Pregnancy Cholecystitis. M. Audebert.

64. **Suture of Levator Ani as Cause of Dystocia.**—Pouliot's case is another warning against plastic operations for laceration of the perineum. The woman was at term with her second child, two years after an operation with myorrhaphy done six months after obstetric laceration of the perineum. The child's head was held back by a cord-like commissure of the vagina. Part of the perineum subjected to this strain developed gangrene but this was soon under control and recovery followed. Plastic operations on the perineum, with suture of muscles in this region, should never be done so as to interfere with child-bearing later.

Archiv für klinische Chirurgie, Berlin

CIV, No. 2, pp. 301-579. Last indexed May 2, p. 1439

68 Necrosis of the Cartilage as Factor in Deforming Arthritis. (Rolle der Knorpelnekrose in der Pathogenese der Arthritis deformans.) G. Axhausen.
69 *Importance of the Thymus in the Origin and Course of Exophthalmic Goiter. C. Hart.
70 *Intestinal Cystoid Pneumatosis. F. Demmer.
71 Pedunculated Cystic Lymphangioma on Diaphragmatic Peritoneum. I. Kumaris.
72 Cystic Degeneration of Mammary Gland. (Cystische Entartung der Brustdrüse.) T. Todyo.
73 *Traumatic Subdural Hemorrhages with Long Interval. A. L Vischer.
74 Hemorrhage in the Kidney. (Renale Hämaturien.) H. Datyner.
75 *Tuberculous Fistulas Cured by Exposure to Direct Sunlight; Heliotherapy. (Einwirkung der Sonnenstrahlen auf tuberkulose Fisteln.) E. Kisch and H. Grätz.
76 *Is Tuberculosis of the Lymph-Nodes in the Pancreas Region of Air-Borne Origin? H. Gross.

69. **The Thymus in Exophthalmic Goiter.**—Hart says that his report of a case in 1908 was the first to call attention to the thymus as a factor in exophthalmic goiter. In his case a man of 29 with a typical case of this disease died suddenly and the thyroid was found apparently normal in every respect. The thymus, on the other hand, was abnormally large and scraps implanted in guinea-pigs proved extremely toxic; the controls bore without harm implants of thymus of other origin. Hart thinks it is now established beyond question that exophthalmic goiter can develop from an exclusively thyroid origin, from an exclusively thymus origin, and from a mixture of both. The predominance of the thymus factor seems particularly deleterious, and the more so, the greater the tendency to constitutional hypoplasia. The earlier the disease develops the greater the preponderance of the constitutional element. The defective development of the chromaffine system, especially the medulla of the adrenals, is one of the chief signs of the constitutional hypoplasia, particularly from the functional standpoint.

Many cases of Addison's disease, he adds, develop on the basis of defective development of the adrenals—a manifestation of constitutional hypoplasia. He found extreme hypoplasia of the chromaffine system in a number of persons who had died during or soon after operative treatment of exophthalmic goiter. In one such case exophthalmic goiter and Addison's disease had both developed on the basis of physical inferiority. Neither disease was secondary to the other. In another case there was slight bronzing and merely hints of exophthalmic goiter, but the defective functioning of the chromaffine system had entailed death without the typical symptoms having had a chance to develop. In other cases the chromaffine system was in actual hyperplasia, showing the excessive functional demands on it; we must not forget that a hyperplastic organ is liable to be functioning abnormally as well as a hypoplastic one. In operative treatment of exophthalmic goiter, the thymus should be attacked first, he says. After its partial or total removal, follow with resection of the thyroid.

70. **Intestinal Cystoid Pneumatosis.**—Demmer gives an illustrated description of what he thinks is the fifteenth case on record of this affection in man. His patient was a farmer of 42, and, as in nearly all the other cases, the cystoid pneumatosis followed old chronic gastro-intestinal trouble of some sort, generally gastric ulcer. In nine cases an operation was done for dilatation of the stomach and pyloric disease was found in five. In two cases a tuberculous process was found in the intestines. The total cases compiled are tabulated for comparison . The stretch of intestine involved in the cystoid affection was successfully resected in four cases, and was excluded from the rest of the bowel tract in two cases. In the personal case reported, it was found necessary to apply gastro-enterostomy on account of an ulcer at the pylorus; the appendix and a long stretch of the ileum were resected. That cystoid pneumatosis may retrogress spontaneously is demonstrated by Urban's case in which all the symptoms gradually and completely subsided after an exploratory laparotomy. Operative intervention is not necessary as long as there is no trouble from adhesions or obstruction of the gut. The symptoms in the case reported had been those of a recurring stomach trouble for six years. Then constipation of the severest type developed, the bowel moving only under strong laxatives or high enemas. The stool was like goat droppings at times, and black. He had been unable to go to work for nine months and been confined to bed for three, when the operation put him on his feet again, a clinically well man. There was a history of a contusion ten years before in the stomach region, but no venereal disease.

73. **Traumatic Subdural Hemorrhage with Long Interval.**—Vischer's two cases warn that after an accident liable to entail subdural hemorrhage the patient should be kept under supervision longer than is usually considered necessary. Signs of pressure on the brain did not develop until one or two months after the trauma, accompanied in one case by a brief attack of aphasia which permitted exact localization of the hematoma. An abscess was improbable on account of the normal temperature. No information was obtained from roentgenoscopy. Fresh and old blood and clots were found in the hematomas. The aphasia patient was entirely cured by the operation and the other patient's symptoms have subsided except a tendency to muscular paresis in one leg. This is probably the result of some slight subcortical injury of the brain at the time of the trauma and has nothing to do with the subdural hematoma. The headaches of which persons complain after an accident to the skull may be due to relics of submeningeal hemorrhage which at the time are not causing trouble otherwise. Trephining relieves not only in these tardy hematoma cases but also in actual hemorrhagic pachymeningitis. De Quervain operated successfully for this cause, relieving the brain from pressure by the blood, first on one side and later on the other, in a case of internal hemorrhagic pachymeningitis in a hard drinker.

75. **Direct Sunlight in Treatment of Tuberculous Fistulas.**—This long article is by an assistant at Rollier's sanatoriums in Switzerland and an assistant at Bier's surgical clinic at Berlin. Sixteen severe cases are reported in detail as typical specimens of what can be accomplished by months of sunlight treatment in old fistulous processes. Rollier reported last year a complete cure in 248 out of 331 cases of open tuberculosis. In the 16 cases reported the 4 in which the soft parts alone were involved have healed entirely, as also 8 of the bone cases but in 4 there is still a minute active process in the depths so that the fistula still persists although materially reduced in size. Fistulas in soft parts heal in four or seven months, but when a bone or joint process is the cause of the fistula a year is usually necessary, sometimes less, but oftener still longer. Kisch and Grätz say that even under a brief course of heliotherapy the fistulas show a marked reaction, including those that have previously resisted all conservative and surgical measures. The sunlight does not cause encapsulation of the fungous masses, but a breaking down of the disease tissue and its substitution by cicatricial tissue.

76. **Tuberculous Lymph-Nodes in Pancreas Region.**—Gross states that in the last two years he has encountered five cases of tuberculosis restricted exclusively to the lymph-nodes in the pancreas region. In the first case the tuberculous lymph-nodes, lying back of the common bile-duct, had compressed it and the gall-bladder. This woman of 65 for thirty-seven years had been subject to gall-stone colics, and the gall-bladder was finally removed. About ten months later symptoms developed anew, ascribed to a stone in the bile-duct. The duct was found empty, but compressed by the large swollen lymph-nodes, the seat of nodular tuberculosis with giant cells. Similar findings were also encountered at the necropsy of a young woman who had died from cholangitis after suffering two years from a stone in the common bile-duct. No tuberculous foci could be discovered except a single plum-sized, cheesy lymph-node back of the common bile duct. The third case was in a workingman who had had stomach trouble for years finally compelling operative treatment for the supposed gastric ulcer. The stomach was found adherent in the pylorus region and this was explained by a large tuberculous lymph-node close to the edge of the pancreas, surrounded by edema which spread toward and involved the pylorus. The big tuberculous node was excised and gastro-enterostomy done and the patient cured at one stroke. Exacerbations of the tuberculous process explain the course in these cases and throw light retrospectively on many puzzling cases of trouble in the upper abdomen. In another case colics in the upper abdomen and lately pain radiating to the back were the only symptoms presented by the young woman. An operation failed to reveal the expected gall-stones but showed tuberculous nodules on the mesocolon and extensive adhesions which were broken up. The patient has been in good clinical health since. The lymph-nodes involved in the five cases were all on the right side of the pancreatic lymph-node system, some in the upper and some in the lower part.

Berliner klinische Wochenschrift

May 4, LI, No. 18, pp. 821-868

77 *The Filling and Emptying of the Heart during Repose and Exertion. (Füllung und Entleerung des Herzens bei Ruhe und Arbeit.) G. F. Nicolai and N. Zuntz.
78 Protective Ferments in the Serum That Digest Witte Peptone. (Zur Kenntnis der proteolytischen Enzyme im Serum Gesunder und Kranker.) P. Saxl.
79 Intranasal Operations on the Lacrymal Passages. (Intranasale Chirurgie bei Erkrankungen der Tränenwege.) M. Goerke.
80 *Idiopathic Intercostal Neuralgia. E. Tobias.
81 Recovery under Salvarsan from Supposed Progressive Paralysis Fifteen Months after Infection with Syphilis. W. Wechselmann.
82 Technic for Introducing Instruments into the Stomach. (Magen-instrumentenschieber.) M. Einhorn (New York).
83 *Colored Plates to Show Proteolytic Action of Ferments and Antiferments. L. Brieger and Schwalm.

77. Size of the Heart at Rest and at Work.—Nicolai and Zuntz report experiments at the Athletics Research Institute at Charlottenburg which demonstrate, they state, that the heart increases in size during vigorous exercise and afterward is smaller than it was before the exercise was commenced. They examined persons working on a kind of treadmill, the chest fitted with a fluorescent screen so that the changes in the heart outline could be supervised. It seems almost certain that the heart normally contains always some reserve blood, to be called on in special emergencies. This explains why the diameter is larger when the heart is working quietly than when it has been pumped entirely empty in the course of vigorous muscular exercise.

80. Idiopathic Intercostal Neuralgia.—Tobias says that analysis of the cases of supposed idiopathic intercostal neuralgia almost always reveals some unsuspected cause which excludes them from the idiopathic category. He found only five cases that stood the test among the 1,400 patients at the Berlin policlinic for nervous affections since 1900. Of these five, herpes zoster on the left side was evident in three; another was a pronounced neurasthenic with left intercostal neuralgia. The fifth patient was a man of 39 with a history of gonorrhea; for eight weeks he had been suffering from unbearable left intercostal neuralgia which had come on suddenly. The knee-jerk and Achilles reflex were lost on both sides and the Wassermann test elicited a positive reaction. Thus the policlinic did not have a single case of actual idiopathic intercostal neuralgia during that period, and in Tobias' private practice he encountered only six cases which could not be traced to herpes zoster or cured by treatment for rheumatism. In three cases the discovery of an aneurism explained the "neuralgia" and in two others chronic inflammation in the vertebrae proved to be the cause of the bilateral intercostal neuralgia.

83. Improved Technic for Estimation of Ferment Action.—The proteolytic power of a fluid is instructively shown by the depressions eaten into a Löffler plate, and Brieger called attention long ago to the dimpling (*Dellenbildung*) in the Löffler plate as a simple and reliable test for antitrypsin in the blood-serum. It is here announced that the test is materially simplified by staining the mixture used for the plate. The depressions not only show up very much clearer but the proteolytic fluid decolors the mixture. A safranin stain, known as iris-violet, has been found most useful. Five drops of a 16 per cent. solution of the stain are added to the mixture which is made up of 80 c.c. fresh beef serum and 20 c.c. of a 2 per cent. solution of grape-sugar bouillon. A loop of the serum to be tested is mixed in turn with 1, 2, 3, 4 or more loops of the standard solution of trypsin. One drop from each of the mixtures is then deposited on the plate. If no dimples are hollowed out and there is no discoloration except with the 1 : 4 mixture, then the antitryptic power of the serum under examination is recorded as 4. This figure represents the normal standard.

Correspondenz-Blatt für Schweizer Aerzte, Basel

April 25, XLIV, No. 17, pp. 513-544

84 *Recent Progress in Diagnosis and Treatment of Pulmonary Tuberculosis. M. Landolt.

84. Recent Experiences with Pulmonary Tuberculosis.—Landolt reviews what has been accomplished in recent years at the Aarau Sanatorium, saying that tuberculin has rendered good service as an aid in differentiation, especially the reaction in the focus in the lung after subcutaneous injection. He insists that this focal reaction must be scrupulously avoided when tuberculin is being given for therapeutic purposes. The diazo reaction is unfavorable, especially if it keeps up. It is frequently positive with intestinal tuberculosis, and it is often negative in threatening pulmonary tuberculosis. In this latter case Weiss' urochromogen reaction may prove positive. He found the diazo positive in 43 and the chromogen in 204 of 395 patients tested, the latter test proving far more delicate. He often obtained a positive response with the latter and later, as the disease progressed, the diazo became positive. In the cases with a favorable course, the diazo dropped off first and later the chromogen reaction.

He found inunctions of a 10 per cent. guaiacol-petrolatum effectual in reducing the temperature; a small lump was rubbed into the skin twice a day. Artificial pneumothorax has been systematically induced in suitable cases but the precaution is always taken to inject oxygen at the first sitting, instead of the nitrogen which is used exclusively later. A brief syncope was observed in one case as the patient started to get up after injection of 400 c.c. of nitrogen; the pulse stopped entirely but tranquil breathing kept up; in two minutes she had recovered; she was subject to syncopes. This was the only occurrence of the kind in the 520 punctures for the purpose in the forty-eight patients given this treatment. They formed 33 per cent. of the 139 patients in the third stage of the disease, and many of them were materially benefited. Transient benefit was realized even in some acute cases, but the progress of the disease could not be permanently arrested. There was no air embolism in any case but mediastinal emphysema was observed in some and a pleural effusion was observed in 30 per cent. This is a very unwelcome complication as it may cause discomfort and production of adhesions later.

On the whole the immediate results of the pneumothorax were excellent in 65 per cent. of the cases, so that this method of treatment, he says, may be regarded as great progress. He does not approve of it in the milder cases; they may recover without it, and the procedure is more or less annoying and cannot be regarded as entirely harmless. But it is a welcome aid, and to sanatorium physicians in particular.

Deutsches Archiv für klinische Medizin, Leipzig

CXIV, Nos. 3-4, pp. 209-432. Last indexed May 2, p. 1441

85 Sugar Content of the Blood in Carbohydrate Treatment and Negative Value of Determining the Sugar in the Blood in the Treatment of Diabetes. J. Menke.
86 Clinical and Experimental Study of Hemophilia. R. von den Velden.
87 The Epinephrin Content of the Blood. L. Adler.
88 Nervous Affections in Leukemia. H. Stursberg.
89 Coagulation of the Blood after Injection of Albumin Bodies. (Blutgerinnung nach parenteraler Zufuhr von Eiweisskörpern.) R. von den Velden.
90 Nervous Origin of Peptic Ulcers. K. Westphal.
91 Phenolsulphonephthalein Test for Kidney Function. K. Hessel.

Deutsche medizinische Wochenschrift, Berlin

April 30, XL, No. 18, pp. 889-936

92 *Threatening Hemorrhage in Pregnant Women. (Behandlung bedrohlicher Blutungen in der Schwangerschaft.) P. Jung.
93 Interstitial Keratitis a Phenomenon of Local Anaphylaxis. (Problem der Genese der interstitiellen Keratitis.) F. Schieck.
94 *Lipoid-Free Diet and Its Connection with Beriberi and Scorbutus. W. Stepp.
95 *Radiotherapy of Lupus. (Zur Lichtbehandlung des Lupus.) A. Jesionek.
96 *The Friedmann Remedy. (Zur Kenntnis des Friedmannschen Mittels.) F. F. Friedmann and L. Rabinowitsch.
97 *Reaction of the Heart to Epinephrin. (Reaktion des menschlichen Herzens auf Adrenalin.) O. Roth.
98 *Alimentary Galactosuria and Levulosuria. H. Wörner and E. Reiss.
99 Alcoholism in Women. Röper.
100 Strictures of the Urethra in Syphilitics Require Vigorous General and Mild Local Treatment. (Schwere Harnröhrenverengerungen bei Syphilis.) B. Goldberg.
101 Therapeutic Influence of Mineral Springs. (Haben die Heilquellen einen spezifischen Einfluss auf den kranken Menschen?) Lenné.

92. **Threatening Hemorrhage during Pregnancy.**—Jung remarks that tamponing is seldom necessary for hemorrhage from an abortion; but if the atony is such as to require it, the uterus must be packed to the fundus. The first thing, he emphasizes, when called to a case of hemorrhage from abortion is to take the woman's temperature, even before making any examination. Fever may be already installed when the physician first arrives, and if this is not ascertained at the time, he may be held responsible for the fever as the case progresses. He advises against the curet, whether the cervix is open or not, for fear of perforation, but as long as any relics of the abortion are left in the uterus and they are keeping up hemorrhage, they must be scraped out with the finger even if the case is already septic. It is a question whether to dilate the cervix with laminaria or a metal dilator; if there is already fever he prefers the latter.

The hyperemia of pregnancy is liable to start coexistent tumors to bleeding, and varices in the genitals or on the limbs may cause fatal hemorrhage. Tumors may be excised without interfering with the pregnancy if the uterus is spared as much as possible and the region is not tamponed afterward. If a varix in the labium or clitoris region bursts, manual compression is all that is possible, applying pressure with a cotton pad dipped in a weak disinfectant solution. The bleeding vessel is so friable that it does little good to ligate it, as a rule, and the only way to arrest the hemorrhage is to throw a stout ligature around the whole bundle of veins, applying a compressing T-bandage. With varices in the vagina the effort should be made to throw a ligature around the veins, avoiding the use of a tampon, to refrain from bringing on labor.

94. **Lipoids Indispensable in Food.**—Stepp found that his mice invariably died when fed on food from which the substances soluble in alcohol and ether had been removed. Restoring the alcohol-ether extract to the food rendered the food wholesome again for the mice. Addition of fat did not answer the purpose. His experiments point anew to the lipoids as representing the vitamins.

95. **Simplified Radiotherapy of Lupus.**—Jesionek presents arguments to show that the benefit from Finsen treatment of lupus is due to the inflammation-inducing properties of the rays and not to any direct bactericidal action from them. It is not necessary, he adds, to use such complicated technic to induce inflammation; the sun alone is able to inflame the skin. All the effect is not felt at the moment, but in twelve hours the skin shows signs of pronounced inflammation after prolonged exposure to the sun or, on cloudy days, to the mercury quartz lamp. At the dermatologic clinic at Giessen, this method of treatment has been systematically applied and with most excellent results. The therapeutic effect may be explained by assuming that the serum attracted into the patches of lupus by the inflammation brings a complement which enables the amboceptors present in the tuberculous foci to display their antibody action.

96. **The Friedmann Remedy.**—Friedmann reiterates that the turtle bacillus culture has always proved in his experience totally harmless for the guinea-pig. The infiltrations and nodules which occasionally develop at the point of injection are of a harmless and transient nature. They represent an intermediate stage and regularly retrogress, and further inoculation of guinea-pigs from them has never induced in any instance tuberculosis, that is, a progressive affection.

Rabinowitsch replies in detail to Friedmann's statements recapitulating what she said in a previous communication in regard to his remedy for tuberculosis (summarized in the Berlin Letter, page 1343), and adding further evidence to reenforce her protest against preventive inoculation of children. She states that the abscesses at the point of injection are not such harmless matters as Friedmann claims; she knows of a large number of Friedmann's patients who have had to suffer for months from these abscesses, in addition to the case she previously mentioned. She describes another in detail in which the woman lost 18 pounds in three months. She also calls attention to the necessity for discriminating between the "culture" and the "finished remedy." What Ehrlich said of the culture was only from the bacteriologic point of view and applied only to the harmlessness of the culture for animals. She says that it is certainly strange that Friedmann in his "long years of research" has never succeeded in inducing tuberculosis in guinea-pigs with his bacilli while others have obtained positive results in a few months. This testifies either that the culture is not a standard unit culture—as Friedmann claims—or else that the avirulent bacilli have acquired virulence in the course of time.

97. **Reaction of the Heart to Epinephrin.**—Roth states that in fifteen patients with heart disease and an equal number free from cardiac taint, injection of epinephrin caused a modification in the heart action to the extent of extra systoles when the heart was already pathologic, but not with the sound hearts. He discusses the nervous factors evidently at work.

98. **Galactosuria and Levulosuria in Tests of Liver Functioning.**—Wörner and Reiss declare that when 40 gm. of galactose are given for the test, an elimination of 3 gm. and more must be regarded as positively pathologic. Levulose given for this purpose must be in the dose of 100 gm., and more than 0.7 gm. must be eliminated before we can speak of a pathologic output. Alimentary levulosuria testifies in a general way to some injury of the liver. Pathologic alimentary galactosuria on the other hand, testifies to the existence of certain definite liver affections and thus permits differential diagnosis of catarrhal jaundice, phosphorus poisoning and fatty liver. Circumscribed liver affections, gall-stones and cancer do not lower the tolerance for galactose unless infection is installed.

Deutsche Zeitschrift für Chirurgie, Leipsic

April, CXXVIII, Nos. 1-2, pp. 1-208

102 *Correction of Tendency of Viscera to Sag. Splanchnoptosis. O. Wiedhopf.
103 Autoplastic Correction of Fractures of Humerus Just above the Condyle. G. v. Saar.
104 *End-Results of Fracture of the Leg. (Heilungsresultate von Unterschenkelbrüche.) O. M. Chiari.
105 Diagnosis of Acquired Diverticulum in Lower Bowel. (Erworbener Dickdarmdivertikel und Sigmoiditis diverticularis.) F. de Quervain.
106 *Acute Pancreatitis. Rollmann.
107 Influence of Roentgen Rays on Healing of Bone Wounds. K. Salvetti.
108 Tearing Off of Lesser Trochanter. (2 Fälle von Abrissbruch des Trochanter minor.) O. Walbaum.
109 Complications of Coxa Valga. B. Brand.
110 Prothesis after Resection of Lower Jaw. Behrend and Bauchwitz.
111 Permanent Cures of Mammary Cancer. H. Lindenberg.
112 *Transplantation of Entire Knee-Joint. C. Deutschländer.

102. **Splanchnoptosis.**—Wiedhopf presents evidence to prove that the viscera sag because there is disproportion between the size of the abdominal cavity and the size of its contents. Treatment can aim to reduce the size of the cavity or to increase the bulk of the contents or both. The latter can be accomplished by eating more, while the size of the cavity can be reduced by toning up the abdominal muscles or wearing a bandage or by an operation on the abdominal wall or floor of the pelvis. He emphasizes that any "pexy" operation, fastening any organ to support it, is illogical in the extreme as it does not act on the cause. He has worked out a technic to correct splanchnoptosis which he thinks has everything to commend it as it reduces the size of the anterior abdominal wall and materially strengthens it without opening into the peritoneum. The rear aponeuroses of the rectus muscles are brought forward and the folds in each are sutured together.

104. **Outcome of Fracture of the Leg.**—Chiari has found that the ultimate functional outcome of a broken leg is better in those who were compelled to go to work early than in those who were paid a sickness indemnity and thus were able to spare their leg longer. The most favorable results were encountered on the whole in those whose stay in the hospital (Innsbruck) was relatively brief. This does not apply naturally to fracture of the malleolus, which must be

considered apart; his eleven bilateral cases of this class warn that plaster casts should be discarded in favor of extension or Lexer's bandage.

106. **Acute Pancreatitis**.—In the twelve cases described by Rollmann the patients were nearly all corpulent and passing or past middle age. Gall-stone trouble was a factor in two, gross error in diet and abuse of alcohol in one. In one case the head was swollen and a few foci of necrosis were all that was found at the gall-stone operation. In two other cases the pancreas disease caused death from toxins in less time than usual with peritonitis from perforation. When there is much suppuration the course is generally milder. Several of the patients said they had had similar attacks on previous occasions, and the calcified foci of necrosis found in the mesentery in some cadavers testify that acute pancreatitis may sometimes heal spontaneously. Five of his twelve patients died; one developed diabetes five years afterward, and one still seems unable to digest fat properly.

112. **Implanted Knee.**—Deutschländer implanted an entire knee-joint after resection of the knee of a boy of 12 for deformity left from poliomyelitis. The results were not all that had been anticipated, but were far from a total failure. Most of the implant was in time destroyed and only a small fraction actually healed in place. The parts that were thus retained were all cartilage. By restricting the implant to cartilage alone we are thus more certain of final success, and the operation becomes much simpler, making less demands on the organism. It is in fact merely a form of the interposition technic.

Jahrbuch für Kinderheilkunde, Berlin

May, LXXIX, No. 5, pp. 507-644

113 Intestinal Infections in Infancy. (Zur enteralen Infektion im Säuglingsalter.) H. Schelble.
114 Inherited Syphilis Producing Symptoms of Friedreich's Ataxia; Two Cases. A. Spiecker.
115 Treatment of Rickets. IV. (Vergleichende Untersuchungen über die Wirkung von Lebertran und Phosphorlebertran beim künstlich ernährten rachitischen Kinde.) L. Frank and E. Schloss.
116 Suppuration in Parotid Gland in Children Originating in Middle Ear Disease; Four Cases. E. Handrick.
117 Sugar Metabolism in Lymphatism in Children. H. Schirokauer.
118 Experimental Study of the Effect of Thymus Extracts. R. Fischl. Commenced in No. 4.

Medizinische Klinik, Berlin

May 3, X, No. 18, pp. 753-794

119 Treatment of Disturbances in Hearing and Subjective Noises. (Neue Mittel gegen Hörstörungen und Ohrgeräusche.) A. Passow.
120 *Scoliosis. A. Schanz.
121 *Alimentary Galactosuria in Diagnosis. (Zur Galaktoseintoleranz.) E. Maliwa.
122 Action of Thermal Baths on the Cardiovascular System. (Einwirkung von Thermalbadekuren auf Erkrankungen der Kreislauforgane.) E. Pfeiffer.
123 The Seashore for Tuberculcus Children. (Behandlung der kindlichen Tuberkulose an der See.) Treplin.
124 Action of Brine Baths on the Cardiovascular System. (Einfluss der Bad-Kosener Sole auf den Circulationsapparat des Menschen.) C. Schütze.
125 *The Duodenal Tube. (Zur klinischen Verwendbarkeit der Duodenalsonde.) M. Gang and P. Klein.
126 *Differentiation of Diseases by Serodiagnosis. (Klinische Ergebnisse mit dem Abderhaldenschen Dialysierverfahren.) B. Forster.

120. **Scoliosis.**—Schanz declares that there is scarcely a case of curvature of the spine for which medical advice is not sought early in the case. The mother usually notices the deformity at once and hurries the child to the doctor. And the child's fate is decided chiefly by what the doctor says at this time. If the child is told to "stand up straight," the diagnosis and supervision of the course of the case are rendered practically impossible thereafter. Never tell a child under these conditions to stand up straight. The next thing, Schanz continues, is to determine whether the curvature is benign or malignant, and the course of the case is the only means to ascertain this. The malignant form develops considerable deformity in a few weeks or months; the onset before or after school life is also suspicious; likewise a history of trauma. The malignant form also grows worse at intervals, with periods of remission, but the course is progressive on the whole. He has had about one malignant case to ten benign ones; the latter do not require treatment as a rule. The mother can massage the back, the child can wear a brace or sleep in a plaster bed—this is generally ample. Too much gymnasium work is liable to transform a mild into the malignant type, and aggravate a malignant case. It is not necessary to take the child out of school; resting the elbows on the school desk helps to relieve the spine. The scoliosis seldom grows much worse during school life, but severe deformity may develop rapidly after leaving school.

121. **Alimentary Galactosuria.**—Maliwa tabulates the findings in twelve cases of liver disease, in ten of orthostatic albuminuria, and twenty-one other patients, after ingestion of 40 gm. galactose, fasting. The data demonstrate that intolerance for galactose is by no means an unequivocal symptom of insufficiency of the liver. The kidneys often have something to do with it. When the latter is the case, the galactose elimination begins abruptly and in large amounts, dropping off equally abruptly. With insufficiency of the liver, the curve of elimination is generally more protracted.

125. **The Duodenal Tube.**—Gang and Klein expatiate on the important information to be derived from the use of the duodenal tube in various stomach and duodenum affections and in making tests of the digestive ferments, etc. They tabulate the details in twenty-one cases of intestinal derangement and in ten gastric ulcer or chlorosis cases.

126. **Serodiagnosis in Differentiation.**—Forster applied Abderhalden's ninhydrin technic to detect cases of incipient exophthalmic goiter and states that treatment instituted on the basis of the ninhydrin reaction gave constantly corroboratory results. Among the cases related is that of a very effeminate man of 43 who for some time had complained of disturbances resembling those of women at the menopause. His serum digested ovary tissue but not testicle, thymus or thyroid tissue. The man is evidently a pseudohermaphrodite and this case suggests that the ninhydrin test may be found especially useful in puzzling cases of hermaphroditism, eunuchoidism, etc.

Münchener medizinische Wochenschrift

April 28, LXI, No. 17, pp. 913-968

127 Bronzing with Cirrhosis of Liver and Pancreas but no Glycosuria. (Hämochromatose unter dem Bilde des Morbus Addisonii.) J. Nakano.
128 Danger from Diphtheria Bacilli Carriers. (Sind die Diphtheriebazillenträger für ihre Umgebung infektiös?) G. Riebold.
129 Transverse Tracheotomy. (Erfahrungen mit dem queren Luftröhrenschnitte.) O. Franck.
130 Polyuria with Mammary Cancer Suggests Metastasis in the Hypophysis; Two Cases. H. Hohlweg.
131 Spontaneous Cerebral Hemorrhage Eighth Day of Acute Hemorrhagic Diathesis in Previously Healthy Young Woman. A. Hufschmidt.
132 Electric Testing Instruments. (Elektrische Reizinstrumente für chirurgische Operationen.) M. Brandes and P. Buschmann.
133 Advantages of Graduated Syringes instead of Pipets in Serologic Work. Alter.
134 Munich Chair for Communal Preventive Medicine. (Sozialhygienische Unterricht an der Universität München.) J. Kaup.
135 Present Status of Pleurisy. H. Köniqer.
136 The Protective Ferments. (Enthält das Serum von Kaninchen denen ihr eigenes Blutserum resp. solches der eigenen Art intravenös zugeführt wird, proteolytische Fermente, die vor der Einspritzung nicht vorhanden waren?) E. Abderhalden and G. Ewald. (Nachweis von spez. Fermenten mit Hilfe des Dialysierverfahrens.) S. Lichtenstein and Hage. (Klinische Verwertbarkeit des Abderhaldenschen Dialysierverfahrens.) F. Freymuth.

Therapie der Gegenwart, Berlin

May, LV, No. 5, pp. 193-240

137 The Ovary and Internal Secretion. W. Benthin.
138 Value of Strophanthus in Sleeplessness from Heart Disease. (Schlaflosigkeit bei Herzinsuffizienz.) A. Fraenkel.
139 Dosage for Children. (Dosierung von Arzneimitteln im Kindesalter.) Engel.
140 Diagnosis and Curability of Multiple Abscess in the Liver. (Multiple Leberabscesse.) O. Heinemann. Commenced in No. 4.
141 *Full Utilization of Vacations for Young and Old. (Ferienausnützung für Kinder und Erwachsene.) M. Bockhorn.

141. **How to Make the Most of Vacations.**—Bockhorn urges physicians to realize better the opportunities afforded by the vacations of the families in their charge, to enable the "resorters" to utilize to the full this welcome change. The physician may deem it best for the children to be separated from the parents for a time, or for one child to be separated from the rest. Children who are nervous, those who stutter, and both children and adults who have bad breathing habits, can be trained in better habits during the vacation.

Children are usually such imitators that even a brief course of training may do wonders. Bockhorn practices in a seaside resort and for the last four years has given summer courses out on the dunes in correct speaking and breathing and the use of the voice in general. It is remarkable, he observes, that so many persons who have to use their vocal organs a great deal never give a thought to perfecting the technic of its use. By his courses he has enabled some to resume their teaching or other career which they had had to give up on account of their voice failing, or asthma or other disturbance.

Wiener klinische Wochenschrift, Vienna

April 30, XXVII, No. 18, pp. 545-596

142 Further Study of Wassermann Reaction. C. Sternberg.
143 Auscultation of the Heart Sounds Through the Nose and Mouth. (Methode die Herzschallphänomene vermittels der Luftwege deutlich zu vernehmen.) K. Mayer.
144 Anatomy of Tonsil Region and Technic for Tonsillectomy. F. Hutter.
145 *Complications after Gastro-Enterostomy. J. Decker.
146 Dubious Sex. (Sexus anceps.) R. Hofstätter.
147 *The Chemistry of the Stomach with Cholelithiasis and Its Importance in Treatment. L. v. Aldor.

145. **Complications of Gastro-Enterostomy.**—In Decker's case fistulas had developed uniting stomach and jejunum, jejunum and transverse colon, and between the colon and stomach. The stools were clay colored. He broke up the adhesions and sutured the perforations, restoring the patient to health.

147. **Stomach Complications with Gall-Stones.**—Aldor recalls that nearly eight years ago he published his experiences in about a hundred cases of cholelithiasis without jaundice in over half of which he had found signs of a catarrhal affection in the small or large intestine or both. His examination of hundreds of similar cases since has confirmed the frequency of chronic intestinal catarrh with cholelithiasis, suggesting some causal connection between them. He here reports almost similar findings in respect to the stomach. Normal conditions of gastric secretion were found in only 18 per cent. of the 82 patients; hyperacidity in 39 per cent.; subnormal or no acidity in 42.6 per cent. The latter condition seems to be the result of the severe affection of the gall-bladder abolishing its function. The loss of gall-bladder functioning possibly modifies the composition of the bile as well as its mode of outflow. Bile in the gall-bladder is nearly ten times more concentrated than bile which drips directly from the liver into the intestine.

For these and other reasons enumerated, it seems evident that the gall-bladder is more than a mere reservoir for the bile, and the loss of it often entails severe and irreparable disturbance in gastric secretion. In a certain proportion of other gall-stone cases, chronic gastritis is responsible for the disturbance in gastric secretion. In this class of cases the symptoms on the part of the stomach keep up more or less most of the time, while in the other group they subside more or less during the intervals between the attacks of gall-stone trouble.

It is very important in treatment to discriminate between the cases with catarrhal affections and those without, as the measures appropriate in one may be directly injurious in the other. When the subacidity results from loss of gall-bladder functioning, hydrochloric acid is indicated, 25 or 30 drops in water half an hour after meals. This does not supply the natural amounts of hydrochloric acid, but it is enough to give the stimulus for pancreas secretion. When it is a question of chronic gastritis, with large amounts of mucus, rinsing out the fasting stomach has often had a surprisingly favorable action. Discovery of impairment of the gastric secretion with nothing else to indicate chronic gastritis, testifies to severe changes in the biliary apparatus, especially in the gall-bladder, and thus betokens a graver prognosis from this point of view than the gastritis cases.

Zentralblatt für Chirurgie, Leipsic

May 2, XLI, No. 18, pp. 753-800

148 *Destroying the Nerve Causing Secretion in Salivary Gland Cures Rebellious Fistula. (Behandlung der permanenten Parotisfisteln durch die Entnervung der Speicheldrüse.) R. Leriche.
149 *Operative Treatment of Spastic Flat-Foot. A. Fischer and A. Baron.

148. **Treatment of Fistulas into Parotid Gland.**—Leriche cured an absolutely intractable fistula left from a stab-wound by exposing the auriculotemporal nerve, loosening it up back to the condyle process and then slowly twisting up its central end, pulling on it and tearing out a stretch about 4 cm. long. The secretion ceased completely in a few days and the fistula soon healed. He has applied this operation in three cases to date. (See Abstract 85 in THE JOURNAL, April 11, 1914, page 1203.)

149. **Operative Treatment of Spastic Flat-Foot.**—Fischer and Baron give an illustrated description of an amplification of Tubby's operation. A strip of tendon 6 or 8 cm. long is cut from the peroneus longus and a shorter piece from the peroneus brevis. The longer piece is then used as a brace to hold the foot in good position. One end is slit and one of the halves is worked through a tunnel bored across the side of the scaphoid. The two halves are then sutured together, forming a kind of handle to the scaphoid. The strip is then brought upward under the skin and fastened to another tunnel bored across the side of the tibia just above the malleolus. The scaphoid bone and hence the whole foot can then be held in normal position by tightening the connecting brace.

Zentralblatt für Gynäkologie, Leipsic

May 2, XXXVIII, No. 18, pp. 649-680

150 Treatment of Puerperal Inversion of the Uterus. W. Beckmann.
151 Anatomy of Uterine Cervix. (Portio vaginalis.) E. Kraus.
152 Roentgenoscopy of Uterine Tumors by Intra-Uterine Injection of Collargol. I. C. Rubin (New York).

Gazzetta degli Ospedali e delle Cliniche, Milan

April 19, XXXV, No. 47, pp. 489-504

153 Retrograde Incarceration of Hernia. L. Bozzotti.

Riforma Medica, Naples

April 18, XXX, No. 16, pp. 421-448

154 Typhoid Bacilli Can Often Be Cultivated from the Mouth Early in Typhoid. (Sulla presenza dei bacilli di Eberth nella bocca dei tifosi.) E. Mondolfo.
155 Experimental Study of Cellular Secretion in Tumors. M. Piscitelli.
156 Smaller Doses of Bromids during Abstention from Salt in Treatment of Epilepsy. (Epilessia e trattamento bromicoipoclorurato.) G. Pellacani.

Rivista Ospedaliera, Rome

April 15, IV, No. 7, pp. 317-356

157 Some Practical Aspects of the Question of Prophylaxis of Typhoid. A. Caccini.

Mitteilungen a. d. med. Fakultät der k. Univ. Tokyo

XII, pp. 1-686 and Supplement

158 Physical Anthropology: Measurements of 3,425 Coreans. T. Kubo.

Hospitalstidende, Copenhagen

May 6, LVII, No. 18, pp. 545-576

159 Volvulus of Sigmoid Flexure and Its Treatment. A. Klindt. Commenced in No. 17.

Ugeskrift for Læger, Copenhagen

April 30, LXXVI, No. 18, pp. 779-838

160 The Skin Tuberculin Test in the Campaign against Tuberculosis. (V. Pirquets Prøve og praktisk Tuberkuloseforebyggelse.) K. Isager.